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THE MADRAS

QUARTERLY JOURNAL

OF

MEDICAL SCIENCE.

EDITED BY

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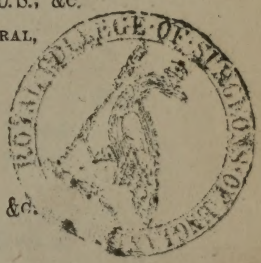

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MADRAS QUARTERLY JOURNAL

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VOLUME THIRD.

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[SECOND NOTICE.]

On the Origin of Species by means of Natural Affinity. By H. Freke, A.B., M.B., M.D., T.C.D., M.R.I.A.; Fellow of the King and Queen's College of Physicians in Ireland; Physician to Dr. Steevens' Hospital, Dublin; Lecturer on the Practice of Physic and of Clinical Medicine in Steevens' Hospital School of Medicine, &c.—London: Longman and Co.—Dublin: Fannin and Co., 1861, 8vo., pp. 135..... 370

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List of Errata in Present Volume.

Page 24, 30th line, for *north-west* read *north-east.*
„ 40, 25th „ „ *smelled* read *smelt.*
„ 48, 27th „ „ "*observed on the banks of the backwater;*" read "*observed; on the banks of the backwater,*"
„ 57, last „ „ *Tripudians* read *Tripudans.*
„ 59, 3rd „ from bottom, for *Fossorriæ* read *Fossoriæ.*
„ 61, 4th „ for *Arachniadæ* read *Arachnidæ.*
„ 61, 11th „ „ *Macruoa* read *Macrura.*
„ 61, last „ „ *Psidum* read *Psidium.*
„ 254, 8th „ „ *cases* read *causes.*
„ 282, 17th „ read *(all untainted)* after *Servants.*
„ 282, second last line, for *execreta* read *excreta.*
„ 289, last line, read *within* before *their.*
„ 380, 29th „ for *The Origin of Species, &c.*, read *By the Origin of Species, &c.*

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JULY 1, 1861.

PART I.

ORIGINAL ESSAYS.

ART. I.—*Notes on some of the Indigenous Medical Plants of India.* By EDWARD JOHN WARING, Esq., Physician to His Highness the Rajah of Travancore.

(Continued from page 255, Vol. II.)

INDIGENOUS EMETICS.

IT is not a little extraordinary that, whilst India produces so many valuable cathartics of established value, the number of indigenous emetics should be so small, and comparatively unknown. It is true that amongst the Euphorbiaceæ, Asclepiadeæ and other families characterised by acridity, there are several, the operation of which is accompanied by vomiting; but for the most part, their operation is attended by hypercatharsis, colic, &c., and hence they are not suited for general practice. We shall, however, see that there are several plants whose emetic qualities are safe, efficient, and well ascertained, though they may not as yet have attained a high place in European practice. We may mention that this class of indigenous remedies received particular attention from Sir William O'Shaughnessy, who, in his early years, contributed as much to our knowledge of Indian Materia Medica, as in his later years he has to the establishment of the Electric Telegraph in India. In every department he has rendered good service to the State. With this brief digression we will proceed to notice the principal indigenous Emetics of India.

Pursuing the same course which we have adopted in considering the indigenous purgatives, we are led to enquire what plants there are indigenous or naturalized in India, belonging to the Natural order Rubiaceæ, the plants belonging to which have the best established reputation as emetics. To this order belong *Cephælis Ipecacuanha*, (the *Officinal Ipecacuanha,*) the *Psychotria emetica*, *Richardsonia scabra*, and *R. rosea*, *Borreria ferruginea*, and *B. poaya*, *Chiococca anguifuga*, and *C. densifolia*, and many others whose emetic properties have been well ascertained. These are all inhabitants of the Western hemisphere, and we have nothing in the East belonging to the same order which will bear comparison with them. Only the two following deserve any attention at our hands, and even these are insignificant.

Randia dumetorum.

مین پھل
Main-phul.

The *Randia dumetorum* of Lamarck, (Illust. tab. 156, f. 4, Wight's Icones, ii, t. 580,) the *Gardenia dumetorum* of Retz, (Roxb. Corom. Plants ii, tab. 136,) the *Posoqueria dumetorum* of Roxburgh, (Flor. Ind. ii, p. 564,) the *Mynphill* of the Taleef Shereef. (p. 163, No. 967.) It is a small shrub, common in most parts of India, and is commonly known by the names of *Myn*, *Main-phul*, (Hind.) *Maru-karung*,(1) (Tam.) and *Manga*, (Tel.) The nut, as met with in the bazaars, is about the size of a small nutmeg, and containing numerous sweetish tasted strong smelling seeds. The Hindú doctors place the fruit amongst their best emetics, and prescribe it accordingly, in the quantity of about one pagoda weight, *i. e.* 52 grains. It is given commonly in the form of powder, the whole nut, seeds included, being pounded. An infusion of the bark of the root is administered to nauseate in bowel complaints. Such is the account of it given by Ainslie.(2) Its emetic properties are likewise noticed in the Taleef Shereef.(3) O'Shaughnessy,(4) however, states that in his search for an efficient substitute for Ipecacuanha, this fruit *Myn-phul* underwent careful examination, and the results shewed that little or no dependence can be placed upon it as an emetic remedy. Roxburgh states that the bruised fruit, thrown

(1) Dr. Ives (Voyage to India, p. 495) describes under the name of *Marricallanga* an emetic fruit "equal to Ipecacuanha." It is probably this article, his name being a corruption of the Tamil *Maru-karung*.

(2) Mat. Ind. ii, p. 185.

(3) Op. cit.

(4) Bengal Dispensatory, p. 399.

into water, intoxicates and even kills fish, without, however, rendering the flesh unwholesome.

Pœdria fœtida.
Somrāj. (Hind.)

The second plant of this order is the *Pœdria fœtida* of Linnæus, (Lam. Illust. tab. 166, f. 1; Roxb. Flor. Ind. ii, p. 517.) a climbing plant of the Peninsula, Bengal, Assam, Nepal, &c. It is known by the names of *Somaraji,* (Sans.) *Somraj, Bacuchi, Gundali,* (Hind.) *Gundo-bhadulee.* (Beng.) The whole plant when bruised, has a very offensive smell. Sir William Jones,(1) however, states that it is almost scentless to those who are very near it, but that it diffuses at a distance a rank odour of carrion. All that we know about its emetic properties is from the statement of Roxburgh, who informs us that the roots are used in that character by the Hindús. Considering the order to which it belongs it may merit investigation.

It is well known that the bulbs of many plants of the Natural order Liliaceæ possess emetic properties; the best known of these is the officinal Squill, *Scilla maritim.* In India we find only two species which call for notice.

Ledebouria hyacinthoides.
جنگلی پاز
Junglie-Piaz.

1. The *Ledebouria hyacinthoides* of Römer et Schultes, (Syst. vii, p. 365; Bot. Mag. lx, tab. 3226,) the *Enythronium Indicum* of Rottler; the *Antericum hyacinthoides* of Willdenow. It is found chiefly in waste sandy places, in most parts of India, and is known by the names of *Nari vengayam,* (Tam.) *Addivitella guddalú,* (Tel.) *Junglie piaz,* (Hind.) *Narraila,* (Cing.) Amongst Europeans it is commonly called *Indian* or *Country Squill* from its resemblance to the true squill in appearance and natural qualities. The roots do not grow so large as those of the squill, and are rounder in shape, but are formed in a similar manner with fleshy scales, and have a bitterish, nauseous, and acrid taste. They are used by the farriers in Lower India in cases of strangury and fevers occurring in horses. (Ainslie.)(2) O'Shaughnessy(3) gave them a fair trial, and though they administered them in double and treble the usual quantity in which squill is

(1) Select Indian Plants, No. 24.
(2) Mat. Ind. 1, p. 402.
(3) Beng. Disp. p. 663.

employed, they did not in any case produce the marked effects which squill occasions. From these trials it appears that this article holds out but little prospect of ever being usefully employed in medicine.

Scilla Indica.

The *Scilla Indica* of Roxburgh, (Flor. Ind. ii, p. 147,) the *Urginia Indica* of Kunth, (Wight's Icones vi, t. 20-60.) It is common on sandy shores of various parts of India, in the Concans, on the sea coast near Tuticorin, &c. *Isquel* or *Isquil* is given as its Hindustaní name, but it is evidently only a corruption of our English word Squill. The bulb is white, about the size of an orange, and according to Roxburgh, as nauseous and bitter to the taste as that of *Scilla maritima*, and probably, he adds, it may be possessed of similar qualities. Dr. Irvine[1] describes the dried root as emetic and alterative, in doses up to 20 grains. O'Shaughnessy,[2] however, examined these bulbs, and found them inodorous, nearly tasteless, and devoid of any medicinal properties. Possibly this may have proceeded from their having been collected from an unfavourable locality, or at the improper season. Few plants are so much influenced by climate as the squill; instances having been known on the Spanish Coast, of its being quite inert in one locality, while as active as usual, at the distance of but a few miles.

Many plants of the Natural order Asclepidaceæ possess emetic properties, and to this order belong two of the best indigenous emetics of India.

Tylophora asthmatica. *Untamool.* (Hind.)

The *Tylophora asthmatica* of Wight and Arnott, (Contrib. to Ind. Bot. p. 31; D. C. Prod. viii, p. 611,) the *Asclepias asthmatica* of Roxburgh, (Flor. Ind. ii, p. 33,) the *Asclepias vomitoria* of Köenig, the *Cynanchum Ipecacuanha* of Willdenow, the *Cynanchum vometorium* of Lamarck, (Encyc. Mett. 11, p. 335,) the *Hoya planiflora* of Wallich. (Asclepiad, No. 117.) A large twining shrub common in Bengal, Coromandel, and other parts of India, also Ceylon, Bourbon, &c. It is met with in nearly all situations, and flowers at all seasons. By the English it is known as the *Country* or *Indian Ipecacuanha*, by the French as *Ipecac sauvage*. Its Oriental synonyms are *Untamool*, (Hind. and Beng.) *Varri*

(1) Mat. Med. of Patna, p. 41.

(2) Beng. Disp. p. 663.

pala, or *Yerri pala*, (Tel.) *Kurinja*, (Tam.) *Kuring yan*, (Cing.) The root, as it appears in the Indian bazaars, is thick, twisted, of a pale colour, and a bitterish somewhat nauseous taste; it possesses considerable powers as an emetic, expectorant, and diaphoretic. Roxburgh often prescribed this remedy, and found it answer as well as ipecacuanha. Given in a pretty large dose, he states, it acts as an emetic; in smaller and often repeated doses, as a cathartic; and in both ways effectually. The natives also employ it as an emetic by rubbing upon a stone 3 or 4 inches of the fresh root, and mixing it with a little water for a dose. It generally purges at the same time. Dr. P. Russel was informed by Dr. J. Anderson, the Physician General at Madras, that he had many years before known it used, both by the European and Native troops, with great success, in the dysentery which was at that time epidemic in the Camp. (Roxburgh. Op. cit.) O'Shaughnessy[1] states that the experience of Drs. Roxburgh and Anderson is confirmed fully by his own trials, and that it affords an excellent substitute for ipecacuanha, if given in rather larger doses. The most recent, as well as the most satisfactory evidence as to the value of this remedy, is from the pen of Dr. Kirkpatrick.[2] After remarking that the powdered roots and juice of this plant are used by the natives of Mysore as an emetic, he adds, "I have administered this medicine in, at least, 1,000 cases, and found it most valuable. In dysentery, and as a simple emetic, it is in every way comparable with ipecacuanha. The dose I use is 20-30 grains, combined with $\frac{1}{2}$ or 1 grain of Tartar emetic, if strong emesis is required. In dysentery the dose is 3-5 grains with 10-20 grains of gum Arabic. If the dysentery distinctly arise from intermittent disease, quinine is conjoined. The form of the medicine I use is the powder of the dry leaf. If the root were used the supply would soon be exhausted, besides I have found it less certain than the leaf. The preparation of the juice would at all times be troublesome and tedious. In catarrhs and chronic coughs, it seems also to act well." With such testimony in its favor, it should be adopted in general practice, wherever the plant is indigenous or easily procurable.

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(1) Beng. Disp. p. 455.

(2) Madras Exhib. Cat. Remarks to, No. 470.

Calotropis gigantea.

آک مدار

Mudar, Ak.

The second plant is the well known *Calotropis gigantea* of R. Brown, (Mem. Wern. Soc. 1, p. 39 ; Wight's Illust. ii, tab. 155-6,) the *Asclepias gigantea* of Linnæus, (Roxb. Flor. Ind. ii, p. 30,) the *Madorus* of Rumphius, (Herb. Amb. vii, tab. ix, fig. 1,) the *Ericu* of Rheede, (Hort. Mal. ii, p. 35, tab. 31,) the *Aak* of the Taleef Shereef. (p. 5, No. 8.) Its Oriental synonyms are *Akund, Area, Vasuca, Mandara, Arcaperna,* (Sans.) *Aishar Ushar,* (Arab.) *Aak, Ak-Mudar,* (Hind.) *Akundo,* Lilac var. *Shwet-Akundo,* White var. (Beng.) *Mayo,* (Burm.) *Wara, Wara ghala,* (Cing.) *Wadoori,* (Javan.) *Yecada,* (Canar.) *Racco,* (Siam.) *Yercum,* (Tam.) *Nella jelledu,* Lilac var. *Zella jelledu,* White var. (Tel.) As I have had occasion lately to speak of the medicinal virtues of this plant both as an alterative-tonic* and diaphoretic,† it remains in this place simply to mention its emetic properties. Although the natives appear to have been long aware of the emetic effects produced by large doses of the root bark, yet to O'Shaughnessy the credit is due of bringing it prominently forward to the notice of British practitioners. In the Bengal Dispensatory (p. 453) he remarks as the result of his clinical observations, that the powdered bark of the root, in doses of half a drachm to a drachm, proves emetic after an interval of twenty or thirty minutes, causing much nausea, and inducing, in about one case in three, a cathartic operation. In doses of from two to five grains, taken every half hour, it proves nauseant, powerfully diaphoretic, and after several doses gently cathartic. On the whole he regards it as one of our best substitutes for ipecacuanha, producing similar emetic and diaphoretic results. He also suggests that in dysentery it may be safely substituted for ipecacuanha in Twinings and other formulæ, about twice the quantity being used for each dose. More recently, attention has been called to it by Dr. Bonavia.‡ He states that, on the recommendation of Dr. Wilkie, he was induced to give it a trial, and that in doses of twenty-five grains he found it a good emetic, as good as ipecacuanha. He likewise obtained excellent effects from it in dysentery, in doses of five grains, three

* Indian Annals of Medical Science, vol. vi, p. 149.

† Madras Quarterly Medical Journal, No. 1, p. 75.

‡ Indian Lancet, Sept. 1st 1859, p. 42.

or four times a day. Dr. J. Hutchinson,* also bears testimony to its value. He states that he has employed it in very numerous cases, and found it, though not approaching in energy or certainty to ipecacuanha, a very useful emetic. In upwards of fifty cases of dysentery he found it operate with certainty and speed. Another writer in the same Journal, under the signature of M. S. T.(1) states, that on the whole he has found it satisfactory as an emetic in large doses, though proving uncertain in its action in only one or two instances. In one case twenty-five grains failed to produce vomiting, whereas in two others, five and eight grain doses respectively induced vomiting when it was not required. Amongst the natives he found good effects in dysentery, but the results were not so satisfactory when tried on Europeans. These testimonies are all so far favourable, as to warrant the employment of the remedy, especially when ipecacuanha is not available. The rules for preparing the Mudar powder I have already detailed when considering its use as an alterative-tonic.

Secamone emetica.
Shada-boori. (Beng.)

Another plant of this order which seems to merit more attention than has hitherto been paid to it, is the *Secamone emetica* of R. Brown, (Mem. Wern, Soc. I. p. 53 ; Wight's Icones, tab. 1283,) the *Periploca emetica* of Retz. (Obs. Bot. ii, p. 14,) a twining shrub not unfrequent in sub-Alpine jungles in the Peninsula of India, Bengal, &c. Its Oriental names are *Shada-boori,* (Beng.) and *Palla soucandee,* (Tel.) Dr. Wight,(2) in 1835, first mentioned that the natives of those districts in which this shrub grows, were aware of the powerfully emetic properties of the root, and he considers that the natives having communicated the same fact to Dr. Köenig, at a distant period of time, is satisfactory evidence of the fact. Its emetic properties are likewise noticed by Royle(3); but it is singular that neither Ainslie nor Roxburgh takes any notice of this plant. It certainly would appear to deserve a careful investigation.

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* Indian Lancet, Oct. 1st 1859, p. 70.

(1) Indian Lancet, Dec. 1st 1859, p. 132.

(2) Madras Journ. of Lit. and Science, No. vi, p. 80.

(3) Illust. 1, p. 274.

Belonging to the same Natural order is another plant, not indeed indigenous in India; being originally a native of the West Indies, but now quite naturalized in India, the *Asclepias curassavica* of Linnæus, (Ker's Bot. Reg. tab. 81; Bot. Cabinet, tab. 349.) By the English colonists in the West Indies it is known by the name of the *Bastard* or *Wild Ipecacuanha, Blood Flower*, &c.; by the French, as *Faux Ipecac* or *Herbe a Madame Boivin*. In Jamaica, according to Browne,(1) the root, dried and reduced to powder, is employed by the former class of the inhabitants as an emetic, in doses of from one to two scruples, hence its common name *Wild Ipecacuanha;* but as its operation is said to be attended by a powerful action on the bowels, it is not likely to find much favor where simple emesis is required. Of its value as an anthelmintic we have spoken on a former occasion.

Asclepias curassavica.

The Natural order Amaryllidea contains one plant, the emetic virtues of which are little inferior to any of those already named, with the exception, perhaps, of *Tylophora asthmatica*. This is the *Crinum Asiaticum var. toxicarium* of Herbert, (Amaryll. p. 243; Wight's Icones vi, tab. 2021-2,) the *Crinum Asiaticum* of Linnæus, (Sp. Pl. 419,) the *Crinum toxicarium* of Roxburgh, (Flor. Ind. ii, p. 134,) the *Radix toxicaria* of Rumphius, (Herb. Amb. vi. p. 155, tab. 69,) the *Belatta-pola-taly* of Rheede. (Hort. Mal. ii, p. 75, tab. 38.) Its Oriental synonyms are *Vishamandala*, (Sans.) *Sukh darsan*, (Hind.) *Burokanoor*, (Beng.) *Wal-to-labo, Tanghek-kolli, tolabo*, (Cing.) *Lutchmenarayna chettu*, (Tel.) *Vishei urungi*, (Tam.) *Belutta-pola-taly*. (Mal.) This plant, with its large white fragrant flowers, is common in low humid localities in the Moluccas, Cochin China, Ceylon, and most parts of India. Rumphius(2) was the first to call attention to its root, and he enlarges on its efficacy as an emetic, in arresting the deadly effects of the upas-poisoned arrows of the Maccassars; upon becoming acquainted with its virtues in this respect, he states, it was kept constantly on hand by those soldiers who were exposed to the wounds of the poisoned arrows; perceiving themselves wounded, they were directed to

Crinum Asiaticum.

سکھدر سن

Sukh-darsan.

(1) Hist. Mat. of Jamaica, p. 183.
(2) Op. cit.

take a mouthful of the root, to chew it, and to swallow the juice; this soon produced violent vomiting and sweating, and the effects of the poison were almost certainly counteracted. So high was its repute that Horsefield[1] instituted a series of experiments with it, from which the emetic properties of the root were fully established. Subsequently, O'Shaughnessy[2] investigated the subject, and his report we quote *in extenso*. "The fusiform portion of the bulb," he remarks, "the bulb itself, and the colourless and sheathing bases of the leaves, are of somewhat narcotic, heavy odour, are readily dried in the stove, and reducible to powder after dessication. From two to four drachms of the recent root or stem, bruised into paste, and this squeezed through cloth, afford a juice which proves emetic after a few minutes; in smaller quantities it is nauseant and diaphoretic; we have never known it to occasion any untoward symptom. The dried and sliced roots are also an efficient emetic, but require to be given in double the dose of the recent article. The extract, whether watery or alcoholic, is very uncertain in its action. As the variety of Crinum is common in Bengal, and other parts of India, and often cultivated in gardens, it is calculated to prove a very valuable addition to the Native Materia Medica. It is indeed the only indigenous and abundant emetic plant we have had experience of, which acts without producing griping, purging, or other distressing symptoms. In the form of syrup, it may probably be found to retain the active principles of the recent plant. The tincture of the fresh plant does not succeed, doubtless in consequence of the large quantity of spirit counteracting the emetic effect, by its stimulating energy."

Viola odorata.

بنفشہ

Banafsha.

Superior to this in efficacy, according to the opinion of O'Shaughnessy, is the root of the *Viola odorata. Banafsha* or *Banopsha.* (Hind.) The plant in the dry state is sold in all the bazaars, and is prescribed in infusion by the Hakims as a diaphoretic in the treatment of fever. It nauseates slightly, owing to its containing a very minute quantity of the principle termed *violina*, closely resembling the emetine, on which depend the virtues of the ipecacuanha of Brazil. Of this principle O'Shaughnessy obtained a very small proportion (about 1

(1) Asiat. Journ. vii, p. 265, and Batavian Trans. vii.
(2) Bengal Dispensatory, p. 656.

from 200 parts) from the *Banopsha* of the bazaars. As sold in the bazaars it has dry, thready fibrous roots, of a pale yellow colour, knotty, some as thick as a quill. The leaves are heart-shaped; flowers blue. The entire plant retains slightly the delightful smell characteristic of this tribe. Under the name of *Beg-banopsha*, or violet root, and having precisely the smell of the fresh flower of our article, is sold in the bazaar the well known "*Orris root*" or *Iris florentina*. Excellent issue peas are made from this root. The root separated from the plant and reduced to powder, proves emetic in doses of from two to four drachms, made into a decoction with boiling water. The emetic operation is preceded by much nausea, and is often followed by purging. An infusion of one drachm of the root in half a pint of water proves a good nauseant and diaphoretic, but in O'Shaughnessy's hands it failed to act as a substitute for ipecacuanha in anti-dysenteric formulæ. The above remarks have reference to the *Viola odorata* as met with in the Indian bazaars, which is probably largely composed of *Viola Roxburghiana*, *V. Serpens*, and other species indigenous on the Himalayas. It may be added that the emetic properties of the root of the *Viola odorata* as found in Europe, have long been known; Coste and Willemet,(1) in 1778, instituted trials with it, and Tournefort, Henninger, and other old writers speak of its use in this character.(2)

Wild Cucumber.

Vomiting Bird's-Nest of Dr. Ives.

Teet-pulta. (Beng.)

The last plant possessed of emetic properties which we shall mention in detail, is involved in some degree of obscurity, which it is desirable, if possible, to clear up. To Dr. Ives, who, as Surgeon to Admiral Watson, served in India from 1754 to 1758, we are indebted for all we know concerning it; but his description is so glowing, that it makes us wish to know more. As Dr. Ives'(3) book is very scarce, it may not be deemed wearisome to give his account of it in his own words. "The Gregorian or Wild Cucumber, called in Bengal Teetpulta, and lately by some Europeans in India, the Vomiting Bird-Nest."

"This plant grows like our cucumber plant, and climbs high on trees; like the cucumber it also varies in its species,

(1) Mat. Med. Indig. p. 6.

(2) Murray Apparatus Medicaminum Ed. 1793, vol. 1, p. 779, and Merat and DeLens Dict. Univ. Mat. Med. vi, p. 905.

(3) Voyage from England to India, in 1773, p. 492.

though I saw no very material difference amongst them. When the fruit is green it is made use of as an ingredient in curries, and cuts like our cucumber. When dry, it consists of a number of fine longitudinal and transverse fibres, finely interwoven with each other, and forming three cells the whole length of the fruit, remarkable for having the longitudinal fibres more numerous on the inside, and the transverse ones on the outside, and which are full of roundish black seeds; those cells open at the end in one hole, whose circumference is that of a shilling, and which is firmly and exactly stopped by the ridged skin, rind, or coat of the fruit. In the centre of this hole, is the pistil which is a continuation of the stalk, and drops out just before the rainy season sets in, and then the seeds also fall; but before that season commences, the skin remains perfectly whole; which happy circumstance seems to be a peculiar care of Providence for the preservation of this valuable vegetable; the fibres are what are commonly called, the Bird's nest, and when dipped in boiling water, and repeated to be dipped, until the water becomes of the colour of fine hyson-tea, it is certainly a powerful and safe emetic, not at all inferior in its virtues to the ipecacuanha root, or any other medicine whatever. It is truth, that wonderful cures to persons labouring under slow nervous fevers have been wrought by this cucumber, whose excellency doth not merely consist in its emetic and purgative qualities, but is also indisputably fraught with stomachic and restorative virtues: it is also a gentle sudorific, and the seeds are esteemed as a powerful vermifuge: 30 drops of a tincture made of the fibrous cells infused in French brandy, and taken in a glass of Madeira wine before dinner, seldom fail to cure the most violent pain of the stomach, which Mr. Thomas often experienced."

"The virtues of this plant seemed to be totally unknown to our brethren of the faculty in India, until Mr. Thomas (who resided with me at the hospital) was informed of them by the black doctors of the country that we employed for collecting of simples, and of whom we endeavoured to get all the information we could relative to botany and the physical practice of the country. To me, this gentleman soon imparted his intelligence, and after repeated and satisfactory trials had been made, I collected a considerable number of the dried cucumbers, and made use of them with great success, as well in my private, as in my hospital practice. I shall only add

on this subject, that the emetic quality contained in the cells of one of those cucumbers, is sufficient to serve for many vomiting doses; the person using it has only to take care, that after having dipped the same in water, it be suspended in the air, in order to its being dried, lest from the aqueous particles which may be remaining in the cells it should chance to become corrupted."

Luffa pentandra?
Momordica cylindrica?

Now the question is, what plant is it to which Dr. Ives alludes? After some research upon the subject I have come to the conclusion, that it is either *Luffa pentandra*, var. *Amara* of Roxburgh, or the *Momordica cylindrica* of Linnæus. Dr. Ives' plant evidently belongs to the Natural order Cucurbitaceæ, to which both these plants likewise belong, hence so far their claims are equal. The only connecting link between the first named and Dr. Ives' plant, is its Bengali name, *Tit porol*, which might easily be corrupted into *Teet pulta*. The unripe fruit is also eaten by the natives of Bengal in curries; nothing, however, is known of its possessing emetic properties. With regard to the second plant, *Momordica cylindrica*, the following short passage from Bennett's account of Ceylon (p. 151) seems to establish their identity. Speaking of this plant, he says, "This is the *Bird's nest Cucumber* or *Vittakoloo* of the people of Ceylon, where the native doctors form a decoction of the fibres which they use as an emetic." The only obstacle in establishing the identity of these two plants lies in the fact that *M. cylindrica* does not grow on the Continent of India, at least as far as I am aware, and yet Ives gives *Teet pulta* as its Bengali name.

List of other reputed Emetics indigenous in India.

Name.	*Part used.*	*Authority.*
Acacia concinna	Seeds	Kirkpatrick Cat. of Mysore Drugs, No. 303.
Achyranthes aspera	Leaves&seeds	Taleef Shereef p. 67.
Boerhaavia decumbens	Juice	Horsefield Asiat. Journ. Beng. vii, p. 493.
Cicca disticha	Root	Ibid, p. 266.
Cycas circinalis	Fresh kernel	Merat et DeLens Dict. Mat. Med. ii, p. 556.
Entada pusœtta	Pulp of seeds	Horsefield op. cit. p. 266.
Ficus reptica	Leaves	Rumphius *in* Horsefield op. cit. p. 493,
Geophila reniformis	Root	Lindley Flor. Med. p. 443.
Luffa amara	Fruit	Roxburgh Flor. Ind. iii, p. 715.
Sapindus emarginatus	Fruit	Kirkpatrick op. cit. No. 300.
Strychnos potatorum	Fruit	Ainslie Mat. Ind. ii, p. 420.
Gendarussa vulgaris	Plant	Bengal Disp. p. 483.

Art. II.—*Remarks on the Climate of the Neilgherry Hills.* By George Mackay, M.D., &c., late Senior Medical Officer at Ootacamund.

The climate of the hill ranges in this country has lately become a subject of great importance to Government, on account of the large number of European troops now employed in India; and to the European community in general, it is one of increasing interest, in proportion as the means of travelling are improved. Railways and good roads are bringing these temperate regions within the reach of many, who were formerly debarred from taking advantage of them, owing to the time occupied in travelling, and the fatiguing nature of the means of conveyance. The Neilgherry hills have the advantage of being easily and speedily accessible from the three Presidencies. In the following remarks, I shall endeavour to give an accurate description of the climate, and the results of four years' medical experience of its effects. My intention is not to write a purely medical or scientific article, but one that may be interesting to the general as well as professional reader.

Before entering on these subjects, however, I would observe, that it seems to me, both the profession and the public generally, have lately shown a tendency to overrate hill climates in India, with reference to their suitability for sanitary stations. I am far from wishing to undervalue such a delightful climate as that of the Neilgherries, but it is necessary to guard against an extreme, equally fatal to the interests both of the public service and of individuals, for disappointment will certainly be the result of looking to the climate of Indian hills to cure those diseases which are most commonly fatal to Europeans in this country. I feel convinced that the true value of these hills will ultimately be found to consist in their possessing a climate in which Europeans can *maintain* their health and vigor: they are therefore better suited for European settlers and stations for troops, than for depôts for sick.

The position of the Neilgherries is now too well known to require description. There are four stations occupied on these hills. Ootacamund, Coonoor, Wellington (formerly called Jackatalla) and Kotagherry. I am not aware on what authority the height of each of these has been fixed, but Ootacamund is said to be about 7,400 feet above the level of the sea, Coonoor and Wellington are about 6,100, and Kotagherry about 6,500. On the eastern side of

Ootacamund the Dodabet hill rises to the height of upwards of a thousand feet above the station, and is the highest point of the range. I shall confine my remarks chiefly to the climate of Ootacamund, as my experience of it is greater than of the other stations.

Climate.—The months of January, February, and March are generally dry, the nights very cold, the temperature before daylight frequently falling below freezing point, while from the clear atmosphere and cloudless sky, the sun's rays are felt to be very powerful during the day. In the forenoon a sharp dry cold wind sets in from the east or north-east, dying away again towards evening, which, combined with the hot sun, is very disagreeable to the feelings, and trying to the invalid, especially to delicate children. The mean temperature during these months is about 54°, and the mean range between day and night 20°. All vegetation is checked, the grass becomes brown, and the aspect of the hills resembles that of the low country at the hottest and driest season. It is customary at this time to set fire to the dry grass, the effect of which is to give the hill sides a still more dismal, black, mournful appearance. Within the station of Ootacamund, the clouds of dust are often very disagreeable, and altogether it is the most unenjoyable season of the year.

In the month of April the weather changes, there are generally showers of rain, the wind instead of blowing steadily from the eastward becomes variable; vegetation commences, and the hills soon assume a green appearance which is quite refreshing. In May the weather becomes still milder, the wind gradually blows more steadily from the west and south-west. Heavy showers of rain fall, frequently accompanied with thunder and lightning, these showers are generally partial, and there is seldom any continued rain till the month of June, when the south-west monsoon sets in. At this season, previous to the setting in of the south-west monsoon, the thermometer stands higher than at any other, the mean temperature being about 60°, and the mean range between day and night 16°.

Rain continues to fall during the months of July and August. At times it is almost constant for three or four days together, but this does not often happen. The south-west monsoon may be said to continue till about the middle of September, after which the wind blows less steadily from that quarter. The mean temperature during this monsoon season is about 56°, and the mean range

between day and night 12°. After the monsoon the wind shifts round towards the north, and becomes colder, and during the month of October the weather is very pleasant but somewhat uncertain, depending greatly on the quantity of rain that has fallen during the previous three months.

When the south-west monsoon has set in early, and rain continued to fall steadily, the latter part of September, and the month of October, are exceedingly pleasant and enjoyable; but if there has been a failure of rain during the proper monsoon months, October is frequently wet. At the breaking up of the south-west monsoon thunder storms are not unfrequent. By the beginning of November, the effects of the north-east monsoon are felt, the wind blows from the north-east and east, the air becomes much more keen, and there are occasional heavy showers of rain; but Ootacamund being sheltered on the east by the high Dodabet hill, there is seldom any continued rain there at this season. In the beginning of December the weather is sometimes foggy, but on the whole it is a fine cold bracing month. The wind blows steadily from the east and north-east, but is seldom strong, and is not of that dry piercing nature which it afterwards becomes (particularly in February and March). The mean temperature in December is about 51°, and the average range between day and night 17°.

I have endeavoured to give a general description of the climate of Ootacamund throughout the year, but in my experience the seasons are very variable, differing much in each year. The following tabular statement showing the fall of rain in each month during the years 1858-59-60, illustrates this remark—

	Rain—Inches and Cents.		
	1858.	1859.	1860.
January	...	0·14	...
February	...	...	2·12
March	0·51	2·63	0·44
April	3·29	13·18	3·26
May	9·48	4·16	6·10
June	4·31	2·67	5·73
July	2·34	10·78	4·76
August	1·98	9·16	6·57
September	3·99	8·23	1·43
October	11·	1·47	12·
November	12·83	9·38	...
December	...	1·28	3·48
Total...	49·73	63·18	45·89

It will be seen that in 1858, during the months of July and August, when the south-west monsoon should have been at its height, only four inches of rain fell, while in October and November, nearly twenty four inches fell. In 1859, July and August, show a fall of nineteen inches, while in October and November, there were only ten inches, and in 1860, eleven inches were registered in July and August, twelve inches in October, and none in November. In 1858 and 1860 the total fall was below the annual average, while in 1859, it was considerably above it. The following table compiled from authentic sources, shows the total annual fall of rain for ten years, from 1851 to 1860 inclusive, and gives an annual average fall of fifty two inches.

Years.....	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	Annual average.
Rain—Inches & Cents...	49·20	54·20	56·20	53·20	56·10	57·10	48·48	49·43	63·18	45·89	52·38

The foregoing remarks refer to the climate of Ootacamund, which is the largest station on the hills. Coonoor is ten miles distant from it, about 1,300 feet lower, and the climate consequently milder. It is a pretty little place, but rather confined, is sheltered from the south-west monsoon, but the fall of rain is greater there than at Ootacamund, during the north-east monsoon. Being lower and nearer the edge of the hills, it is more exposed to the fogs which rise from the low country, and the variations of temperature are often sudden and great. The climate is less bracing, but better suited to some cases than that of Ootacamund, particularly to cases in which there is hepatic derangement, and young delicate children born on the plains, thrive better there. During the months of January, February and March the north-east wind blows strongly at Coonoor, but is not so cold, piercing, and trying to the invalid, as on the higher plateau.

Wellington is at present the only military station on the Neilgherries. The barracks there accommodate one European Regiment, and the European Convalescent Depôt. It is about the same elevation as Coonoor, and the climate very similar, it is merely separated from that station by a deep ravine. Kotagherry is about 400 or 500 feet higher than Coonoor, seventeen miles to the eastward of Ootacamund, on the edge of the hills, with an extensive view of the plains of the Coimbatore District below. It is sheltered by the Dodabet range from the south-west monsoon, but rather exposed to the easterly winds. The climate is a medium between that of Ootacamund and Coonoor. It is

the most agreeable climate on the hills, but as a sanitary station has not been sufficiently tested. There are few good houses there, no resident Medical Officer, and no road to it passable for wheeled conveyances. If these obstacles were removed, it would soon become the favorite hill station.

Effects of the Climate on the Healthy Constitution.—The healthy European, on first reaching the plateau of the hills, is struck with amazement that in a few hours, he has been transported from the burning plains, to a region so delightful and enjoyable. The feeling is exhilarating in the extreme, but the peculiarities of the climate are soon felt. On making an exertion a feeling of oppression and tightness of the chest is experienced, owing to the elevation and the rarefied atmosphere. There is a desire for out-door exercise, but, particularly at the coldest season of the year, the visitor feels that he has not escaped from the Indian sun. The climate, however, is most enjoyable ; I know of none on the whole more so, but even a person in health must not forget that he has made a most sudden transition, and should be provided with warm clothing, for the tendency of the change is to check the action of the skin, and induce congestion of the internal organs, particularly of the liver. He should also be careful to avoid undue exposure to the sun, and above all, exposure to the sudden change of temperature, which takes place at sunset. Exercise and cold water bathing, will be found great preservatives of health. On first visiting the hills, many shrink from cold water bathing, even those who have been in the habit of using it in the low country, but this is a great mistake. The bracing climate, combined with exercise, favors a healthy reaction, whereas the low tone of the nervous, and relaxed state of the cutaneous system in the heat of the plains, renders such a reaction more difficult, and persons in tolerably good health will find cold water bathing on the hills both enjoyable and beneficial. Invalids must, of course, use it more cautiously, and those suffering from any serious functional derangement of an important internal organ, must avoid it till their health is improved. For children in health it is especially bracing and strengthening.

A high authority writing on the health and efficiency of British troops in India, asks—"Where and how are we to obtain that amount of elevation, which, while it removes the European out of the range of malarious fevers, may not place him in that of an exhausting and dangerous diarrhœa?

This is the great desideratum, one hitherto unascertained, because unsought for; yet no examination which may fall short of ascertaining this desired medium elevation, can be deemed satisfactory of our sanitary wants." This author's experience has been chiefly, if not entirely, confined to the hill stations in the Bengal Presidency. The desideratum he alludes to, we have in the elevation of the Neilgherries. All the stations there are above the range of malarious fever, and diarrhœa and dysentery do not prevail.

I have never met with these diseases there, in the form described by Mr. Grant and Mr. Green, (in Nos. 1 and 2 of the "Indian Annals of Medical Science,") as endemic in some of the Himalayan sanataria. Attacks of diarrhœa are not uncommon among new arrivals from checked perspiration, and consequent congestion of internal organs, especially the liver, the system relieving itself by a flow of bile; but in the tolerably healthy these readily yield to ordinary treatment, and by due precautions as to clothing, and guarding against exposure on first arrival, they may be prevented altogether. A more suitable climate for European troops in this country, could hardly be desired: it is particularly adapted for regiments on first arrival from England. The men would there retain their health and vigour, yet to some extent become initiated into the peculiarities of a tropical climate, and if required for service in the low country, would be better able to stand exposure and fatigue.* The climate being a medium one, they would be less plethoric than those just arrived from England, and their systems less exhausted and enervated, than if they had passed any time on the plains.

The subject of acclimatisation of Europeans in India, is one of very great interest and importance. The advocates for it, seem to adduce strong arguments in its favor. They are too apt, however, in recording the deeds of veteran soldiers in India, and comparing their immunity from the bad effects of exposure, with its baneful results on those more recently arrived, to overlook the fact, that it may not depend so much, on the former having become acclimatised, as that they are the few whose natural constitutional conformation has enabled them to resist the causes of disease, under

* There is no sufficient evidence, as yet, in proof of this statement. A detachment of H. M.'s 60th Rifles, which was lately sent from the Hills to Trichinopoly, according to Deputy Inspector General of Hospitals W. G. Davidson, suffered more from sickness in proportion to its strength, than the 2nd Regt. E. L. I., which had never enjoyed a Hill climate.— ED. *M. Q. J.*

which so many of their comrades have succumbed. The enormous expense of keeping up an European army in India, where every soldier at the lowest computation costs the State £100, makes the preservation of their health even on this ground alone, a serious consideration, and there cannot be a doubt but that much saving of life, and much saving of expense in sending invalids to England, would be effected by locating them in such a climate as that of the Neilgherries. The erection of substantial barracks on the hills is a very costly undertaking, but however necessary such buildings may be considered in a Military point of view, on the score of health I believe they might with advantage be dispensed with, in such a climate. Well constructed huts, built with inexpensive material, would afford sufficient protection, and prove more conducive to health, than the system of massing troops in a barrack, which it is difficult to ventilate thoroughly.

One objection to stationing troops on hills, is that their base is usually surrounded by a belt of jungle, in passing through which malarious fever is apt to be contracted, and it is difficult to transport them, and especially their camp equipage and followers, sufficiently rapidly through these jungles, to escape their evil effects. The approach to the Neilgherries from the south, is quite free from this objection, there is no feverish jungle to pass through on ascending the Coonoor Ghaut. On the Mysore side the road passes through the Segoor jungle, which is feverish, but it is only during the dry months immediately preceding the south-west monsoon, and when the first showers of rain fall, that there is much risk of contracting fever there, and this being the hottest season of the year, is just the time when European troops are not moved, except in cases of necessity. During both monsoons the Segoor jungle is free from fever, and at all seasons of the year, it may be traversed during the day, with safety. The troops might be conveyed in covered conveyances, and the distance is not greater than their followers could accomplish in one day's march.

The question is frequently asked, what is the best season of the year for visiting the hills? From the middle of January to the beginning of April, the cold dry easterly wind and hot sun during the day, are disagreeable and trying, particularly to ladies and children, and more especially to young children who have been born in the low country. Colds and coughs are prevalent at this season, and whooping

cough frequently epidemic. Persons who can choose should avoid visiting the hills at this time, but if obliged to do so, they will find Coonoor the best place to reside in. April and May are delightful months, and the best time for a short sojourn at Ootacamund. To persons who go up for a short visit, the rain during the south-west monsoon is an objection, but all who have resided at Ootacamund, for any length of time, prefer this season. It is certainly the most healthy; the temperature is more agreeable than at any other time of the year, and the rain is seldom so constant, as to prevent exercise being taken at some time in the day without getting wet. As a general rule no harm results from getting wet on the hills, taking the precaution not to sit in damp clothes afterwards, and particularly to change both shoes and stockings on returning home. At this season of the year the sky is cloudy; it is a great relief to get rid of the bright glare of the sun, and the breaks in the monsoon which frequently occur, and last for a week or ten days at a time, even during the wettest seasons, are most enjoyable.

The visitor who dislikes the damp at Ootacamund, may generally escape from it, by going to Coonoor, or to the more bracing climate of Kotagherry. When rain has fallen in seasonable quantity, during the previous three months, September and October are good months for visiting Ootacamund, and those who desire a more bracing temperature will prefer November, December and the first half of January.

PRECAUTIONS NECESSARY ON FIRST VISITING THE HILLS.—Many persons on visiting the hills for the first time, seem to have no idea of the nature of the climate, or, at all events, have not reflected on its peculiarities, and arrive totally unprepared. Some act as if they were no longer in a tropical climate; with others the difficulty seems to be, to break through their low country habits, and above all, many overlook the important fact, that they have been in a few hours transported from the plains below, to a region with an average temperature of from 20° to 30° lower. It not unfrequently happens that travellers start from Segoor, (at the foot of the ghaut,) when the thermometer in the shade is 86° or 90°, and find themselves at Ootacamund the same evening in a temperature 30 or 35 degrees less, and for this great and sudden change they are quite unprepared in the way of clothing. Warm clothing is indispensable, light woollen materials are the best, flannel is necessary and above all a broad belt of this material, to protect the abdo-

minal organs from the effects of a sudden chill. Persons subject to cold feet, and especially those who are unable to take much exercise, should be provided with woollen stockings, and these articles of dress should be put on before reaching the summit of the ghaut. Strong boots and shoes are necessary to preserve the feet from damp, and during the rains, light, waterproof, overclothing is desirable. Even healthy individuals should avoid excessive exposure to the sun on the one hand, and to the cold night air on the other.

Parents cannot be too cautious with children as regards their clothing and exposure on first arrival, especially with young ones who are unable to keep themselves warm by taking exercise. The surface of the body and extremities should be protected from the cold wind, but short dresses, bare legs, and arms, are more in accordance with what is considered becoming; and till a child thus clad has had a serious illness, it is often difficult to persuade parents, that it is a style of dress not suited to the climate. A remonstrance on this subject is generally met with the remark, "children in England are dressed in this way," forgetting, that the two cases are not parallel, that those brought to the hills have been born on the plains of India, and suddenly transplanted to a very different climate. I am not an advocate for overclothing children, and so making them susceptible; but on the hills the opposite extreme is more frequently practised by new comers, and is the cause of much sickness. This subject leads to the consideration of one of great importance, namely,

The Climate of the Neilgherries as it affects European Children.—The healthy, ruddy appearance of the children of European parents on the hills, is constantly quoted as a proof of the salubrity of the climate, and certainly it is refreshing to see them in contrast with those in the low country. Infants, however, are generally a source of much anxiety at Ootacamund, particularly during the cold dry season, owing very much to many of the houses not being sufficiently substantially built, and the carelessness of native servants in exposing these little ones to currents of cold air, from open doors or windows. If naturally delicate, Coonoor is a better climate for them. Teething is a more trying ordeal to children on the hills than in the low country, they are more subject at that time to acute thoracic and abdominal attacks. Those born on the hills thrive very well, but as a general rule, unless there is some strong reason for it, I

would not advise infants being taken from the low country to Ootacamund, till they have cut all their first teeth. Older children, (above four or five years) who are able to take sufficient exercise, do well, which is proved in the healthy appearance of the Lawrence Asylum children, both girls and boys, and of those in private schools at Ootacamund. The climate, is far preferable for them, to that of the low country, both as regards their physical and mental development, and though it falls far short of that of their parents' native land, it is a good substitute, and as such should be taken advantage of. But children brought up there, though apparently strong and healthy in their youth, in after years show constitutional weaknesses, and this I have observed to be particularly the case with females. It is well known that without the admixture of fresh European blood, the race cannot be perpetuated on the plains of India. There are few instances of European families, under such circumstances, extending beyond the second generation, and I am inclined to think the same result will follow the attempt to colonise the hill districts in India.

Sanitary State of Ootacamund.—It certainly says a great deal for the climate of Ootacamund that it is so healthy, for sanitary measures have been sadly neglected there. The station is divided by a deep valley, a large portion of which is filled with water, forming a picturesque lake. At the upper extremity of this, the large station bazaar is situated, the houses there are crowded together, those in the lower street are built close to the water, many of them on a foundation formed by the rubbish thrown out from the houses above, and the filth washed down by the rain from the upper streets. With every natural facility for doing it effectually, drainage has been totally neglected, not only in the bazaar, but throughout the whole station. It will hardly be believed that undrained swamps still intersect this important sanatarium. The invalid may shoot snipe in some of these without leaving the compound of his house.

The objectionable practice of cultivating potatoes in these bogs, is carried on to a considerable extent, they yield a large return; but the quality is very inferior, and when the stems wither and rot, the effluvia from them is very disagreeable. Some of the best houses are built immediately over these swamps, some on a level with them, and not a few on a lower level than the swamp itself.

Trees judiciously planted are both ornamental and useful, but the fast growing Australian trees have been cultivated to rather too great an extent around some of the houses, excluding the free mountain breezes; the noxious weeds, nettles, brambles, giant thistles, and lobelias, which abound in some localities, are still more objectionable. In short, the station is a strange mixture of snipe bogs, neglected compounds, and neat flower gardens. It is not from want of medical representations that this state of matters has been allowed to continue, nor are there any engineering difficulties in the way, but no encouragement has been given by the local authorities to improvements; it is argued that the station has hitherto been healthy, that such things are better left as they are, and that no injurious consequences can possibly result from them, in this mountain region. The river Thames was once a pure and harmless stream, but what has it become? The swamps in Ootacamund may formerly have been innocuous, but it does not follow that they are always to continue so.

At my request, the Assistant Magistrate kindly furnished me with monthly mortuary returns of the station. These show that the deaths during the last six months of 1860, among natives, in the lower street of the bazaar, were four times more numerous than in the middle street, and ten times more numerous than in the upper street, though the population in the lower street is less than in either of the others. Further, two-thirds of the deaths in the lower street were from zymotic diseases, and twenty seven per cent. of all the deaths from that class of diseases, occurred in that locality, though the population there, is but a very small portion of that of the whole native community.

These facts prove that people cannot live with impunity, even at Ootacamund, in the midst of filth and damp; for I have already mentioned that the lower street of the bazaar is close to the lake, and that many of the houses are built on soil formed by the filth which has been thrown out from the houses above, and carried down by the rain. The slopes of the hills at Ootacamund are now covered with human habitations, every convenient bush is made use of to deposit under it filth of every description, the sweepings and refuse of every kind from each dwelling are thrown out, wherever they can be conveniently disposed of. With every shower of rain they are washed down to the swamps and valleys, no attempt being made by artificial means

to drain them, while in some even the natural drainage is blocked up. Under the favorable influence of moisture and the sun's rays, there must be both animal and vegetable putrefaction going on in them. If the pure mountain breezes are allowed to become polluted by the exhalations from these cess pools, the health of the community must suffer, and undoubtedly it will do so. These are matters that would properly come under the cognizance of a municipal committee, but no such association exists at Ootacamund.

A committee composed partly of official members, has, however, lately been formed by Government, and under their direction improvements have been commenced, and it is to be hoped they will be energetically carried on. It is very true that healthy looking European families are to be seen, who reside in houses, on a level with, or actually below, the swamps above alluded to, but visitors will do well to avoid such localities. The cold damp air which hangs over these swamps, cannot be conducive to health. The variation of temperature is greater there than in the higher situations. On descending into one of these valleys in a clear night, the difference of temperature is most perceptible, which is easily explained by the greater density and weight of the colder columns of air, causing them to descend; the atmosphere there is also comparatively undisturbed by wind, and the consequent greater effect of radiation and evaporation, is seen in the formation of ice in these valleys, when there is none in the higher situations. The same causes produce dense fogs in the valleys, while the atmosphere above is quite clear. It is advisable, when possible, to select a house sheltered from the north-west, at the season when the wind prevails from that quarter; in other respects all those built in elevated situations, are decidedly to be preferred.

The Climate of the Neilgherries with reference to Invalids.—The wonderful effects of change of climate on the invalid, are no where more strikingly observed than in India generally. Unless the case is one for which the climate of the hills is totally unsuited, the first effect on arriving there is generally most favorable, both as regards the patient's own feelings, and his actual symptoms; but this first impression is almost always transitory, alike in cases where the climate ultimately proves beneficial, as in those where it fails to effect a cure. I need hardly say that the precautions already mentioned, as necessary to be observed on first visiting the hills, apply with double force to invalids.

They should arrange so as to reach Ootacamund after 8 A. M. and before 4 P. M. They should at once break through their low country habit of getting up before day-light, and should not venture out till the sun is well up, and has dispelled the cold damp mist of the night, and above all things they should avoid exposure at night. The change of temperature at sunset is so sudden and great, that invalids should specially guard against it, and young children should always be brought home before the sun sinks below the horizon.

The best season of the year for an invalid to reach Ootacamund is about the middle of April. The great difference of temperature between day and night, and the cold dry north-east wind which prevails previous to that time, is disagreeable to the healthy, and detrimental to the sick. After the first showers of rain fall, the temperature becomes more equable, and the cloudy sky admits of exercise being taken during the day. This latter advantage is a matter of great importance. Persons unable to take exercise will at all times find the sudden change from the plains trying. Riding being less fatiguing, is, as a general rule, preferable at first to walking. Over fatigue is to be avoided, but as convalescence advances, it is desirable for the invalid to be as much in the open air as possible.

The days of mercurialism are fortunately past, and that remedy is now used much more sparingly than it used to be; on the Neilgherries it requires to be given with peculiar caution. Salivation is easily produced, both in Europeans and natives, owing probably to a tendency to a cachectic scorbutic state of the system, which seems to exist to a much greater extent at some of the Himalayan sanataria, and to which Mr. Grant traces the prevalence there, of diarrhœa and dysentery. I believe that if sanitary measures, in the way of cleansing and draining the station, continue to be neglected, the same bad results will in no long time manifest themselves at Ootacamund. Primary cases of intermittent fever are now met with in natives; I have seen several instances of typhoid remittent among them, and a few severe cases of the same in European children.

FEVERS.—Persons suffering from slight attacks of fever, intermittent or remittent, contracted in the low country, do well on the hills, when no important internal organ has become either structurally diseased, or functionally deranged, to a serious extent. They generally gain strength rapidly, and the periodicity of the attacks being checked by quinine,

they are soon restored to health. Unfortunately such cases are not very often met with. Malarious fever contracted in the jungles in this country, is generally so severe at first, or so persistent, that the liver or spleen becomes more or less seriously affected, no benefit is then to be looked for from a change to the hill climate. Between the attacks, such patients often gain strength, and feel so well, that they become hopeful of a cure, and are the more sanguine when, as sometimes happens, the interval between the attacks is lengthened; but when the paroxysm returns, the cold stage especially is more prolonged and severe. I have never met with a case where a cure was really effected, while I have known some where, although considerable improvement took place while on the hills, on returning to the low country, the attacks became more violent than they had ever been before. Such cases should not be sent to the hills.

ERUPTIVE FEVERS.—*Rubeola.*—I have seen many cases of this disease at Ootacamund. It prevailed epidemically during the months of July and August 1860, both European and native children suffered, and for three or four months afterwards occasional cases occurred. Many of the native children attacked died, but in general the symptoms were not severe in the European patients, though frequently accompanied with bronchitic complications.

Scarlatina.—I have only met with one undoubted case of this disease, it occurred in the month of May 1860, and was slight.

Variola.—Small-pox seems to be less prevalent among the natives on the hills than it was formerly, still it is frequently met with. I have never known it spread to the European community. Vaccination succeeds well, both in Europeans and natives.

Varicella.—This disease is common, both among the natives, and in European children.

DISEASES OF THE LUNGS.—As a general rule the hill climate is not suited to this class of diseases.

Asthma.—Persons subject to asthma usually suffer much, and I have met with one or two cases in which it has originated at Ootacamund, and been cured by a return to the low country.

Bronchitis and *Pneumonia* are both very common among

natives. Being comparatively rare diseases among Europeans in the low country, they are seldom met with in those who resort to the hills for change of climate. Persons subject to such affections should avoid Ootacamund, particularly during those months in which the north-east wind prevails; they will find Coonoor a preferable climate.

Pertussis.—Whooping-cough is very common, often very severe and obstinate, generally appears about the end of January, and in some years prevails epidemically. When little rain has fallen during the previous year, and especially when the north-east monsoon has been a failure, the wind during the subsequent months is generally more dry and cold, and the climate very trying for young children; even when whooping-cough does not appear, they are liable to catarrhs and spasmodic cough without any whoop, which comes on in paroxyms most frequently during the night. This cough seems peculiar to Ootacamund, and does not render children who have suffered from it proof against the infection of true whooping-cough. Change of air is the best remedy in these cases, and it is one of the advantages of the Neilgherries, that so decided a change can easily be effected by a removal from Ootacamund to Coonoor. It rarely happens this is not sufficient, and a return to the low country necessary.

Phthisis.—I am inclined to think that experience on the Neilgherries will not support the idea entertained by some, that the tendency to this disease decreases with elevation. I do not remember meeting with a case among the aboriginal tribe of Todars, who are now few in number, but I have seen many among other classes of natives. There are not yet sufficient data for ascertaining whether children of European parents born and bred there, show any tendency to phthisis; but it is very certain that Europeans in whom tubercular disease of the lungs has developed itself, are not fit subjects for the climate of the Neilgherries. Persons of this diathesis suffering only from general debility, may derive benefit from a sojourn at Coonoor, or even in the more bracing climate of Ootacamund, during the months of April and May; the subsequent monsoon months are generally too damp, and a residence there during the prevalence of the north-east wind, is decidedly objectionable for such cases.

Cynanche.—I have never seen a case of cynanche maligna on the hills. Cynanche tonsilaris is common among

children. I have frequently been obliged to advise the removal from the hills of European children with enlarged tonsils, on account of their liability to inflammatory attacks, particularly during the cold dry season of the year. Severe attacks of cynanche trachealis, are occasionally met with during these months, but less frequently than might be expected.

DISEASE OF THE LIVER.—Persons affected with slight functional derangement of the liver, if they are careful in their diet, keep regular hours, avoid exposure to the sun, and the extremes of temperature, and take sufficient exercise, do very well on the hills ; but even for these cases, the climate of Coonoor or Kotagherry is preferable to that of Ootacamund on first arriving, and they should never be sent to the hills between the months of October and April. Persons suffering from serious functional disease of the liver, particularly if of long standing, and those with organic affections of that organ, should never be allowed to visit the hills. The sudden change of temperature, the effect of the climate on the cutaneous system, and the great sympathy between it and the liver, renders the Neilgherries quite unsuited for serious hepatic affections.

DISEASES OF THE STOMACH AND BOWELS.—*Dyspepsia.*—Dyspeptic patients are generally much benefited by a residence at Ootacamund, particularly when the symptoms are the result of debility from long residence on the plains, and are unconnected with any organic disease. Constipation is usually a troublesome symptom in such cases, resisting all treatment in the low country ; but as the tone of the system generally, and the digestive organs in particular, becomes improved, it yields to ordinary treatment on the hills.

Diarrhœa.—If this disease is slight, and merely a symptom of want of tone, it is manageable, and improves under judicious treatment ; but if severe, it is so frequently associated in this country with hepatic derangement, that the patient is more likely to become worse than better on the hills. A flannel belt should always be worn in such cases, however slight, and the climate of Coonoor is better suited for them, than that of Ootacamund on first arrival.

Dysenteria.—The remarks just made with regard to diarrhœa, refer with much greater force to dysentery. Persons suffering from this disease should never be sent to the hills. When the symptoms are so severe as to render a change of climate necessary, a more suitable one should be selected,

even slight cases are liable to be made worse by a change to the Neilgherries.

Diseases of the Brain.—The hills are not suited for diseases of this class, the tendency to conjestion is apt to aggravate such ailments. Headaches are frequently complained of by persons on first arrival.

Epidemic Cholera.—A severe form of diarrhœa, which often proves fatal, is not uncommon among the natives at Ootacamund, when the first showers of rain fall, previous to the setting in of the south-west monsoon ; but I have only met with one case of undoubted cholera, in which the disease originated on the hills. This was a prisoner in the Ootacamund Jail, in whom the disease proved rapidly fatal. I have seen several other fatal cases in persons, (one a European) who had just arrived from the low country, and evidently brought the disease up with them. The climate does not seem to have the slightest effect in modifying the symptoms of this disease, on the contrary, the cases I have seen have been most severe and rapid: should the preparations for its reception continue, in the way of a disregard of all sanitary arrangements, there is every reason to fear that cholera will some day exhibit its virulence on the Neilgherries, as it has done in other temperate climates.

Rheumatic Affections.—Rheumatism is not a disease which often originates on the hills among Europeans, and is one of those mentioned in the rules for the guidance of Medical Officers in the service, for which patients should not be sent there, consequently few cases come under observation. During the months of January, February and March, when the cold dry north-east wind blows, the climate of Ootacamuud is most unsuited to patients labouring under any form of rheumatism. I have, however, seen rheumatic cases much benefited by a residence there, during the succeeding months ; the equable temperature, even during the rains in the south-west monsoon, (with proper precautions against wet,) seems favorable, where the symptoms are not the result of the syphilitic poison in the system, or the abuse of mercury, or both.

Venereal Affections.—For this class of cases the hill climate is not favorable, and is decidedly injurious in the severe forms of secondary syphilitic ailments.

Wounds and Injuries generally do well on the hills.

NEURALGIA.—Persons subject to this painful affection, suffer much during the prevalence of the easterly winds.

The individuals who derive most benefit from a change to the hills, are those who are labouring under no organic or serious functional disease, but suffer from general debility, the result of a residence in the low country; these persons rally wonderfully. The beneficial effect of the climate in such cases, is constantly seen in European females, who arrive there, weak and emaciated, and in a few months are able to ride and walk about perfectly restored to health. But even in these cases it will, I think, be found that the benefit is not very permanent, and patients are more apt to relapse into their former state, than when the cure has been effected by a more thorough change to an extra-tropical climate. Further, when we consider what the diseases are which most generally prove fatal to Europeans in India, and necessitate invaliding among European troops, (hepatic affections, diarrhœa, dysentery and secondary syphilis,) it will, I think, be acknowledged that they are chiefly those for the cure of which the hill climate is not favourable. Surely therefore it is not as sanataria that the hill stations should be *especially* used. Both officers and soldiers frequently arrive in this country before they have attained their full growth and vigor, if at all imprudent, or even from the exposure which their professional duties necessitate, they are often attacked by some of the ordinary Indian complaints, and suffer from relapses, till their health becomes thoroughly broken, or a change of climate to Europe is necessary to restore it. Many such cases would be prevented by locating Europeans on first arrival at a hill station, till their constitutions become more confirmed, and better able to resist the predisposing and exciting causes of disease, and in the case of European soldiers, much saving of life and expense to the State would thus be effected.

The length of time that an invalid should remain on the hills, must of course be determined by the particular circumstances of each case; but in general the time allowed is too short. When a patient is sent to Europe, it is usually considered necessary that he should reside there for at least one year, yet patients are not unfrequently sent to the hills for two or three months. Although in slight cases this short residence may seemingly effect a cure, yet such persons are apt to relapse into their former state on returning to the low country. It should be remembered that the change

down to the plains is very trying to persons not thoroughly restored to health, and the length of residence should in all cases, where it is possible, be so timed that the patient may return to the low country at the beginning of the cold season.

Effects of the Climate on East Indians and Natives.—The climate of the Neilgherries is equally suitable for the maintenance of health and vigor in the East Indian as in the European. Doubts have been entertained on this point, but as regards children, it has been sufficiently proved in the case of the inmates of the Ootacamund Lawrence Asylum. The East Indian children there have, if possible, thriven better than the European, and all of that class do well, provided they have the means of clothing and housing themselves properly.

The Todars, who are the aboriginal native inhabitants, are a fine athletic looking race, but they are gradually dying out, and are now few in number. They suffer much from scorbutic symptoms, constantly apply for medical aid, presenting a low cachectic state of body, with spongy ulcerated gums, and sores on the tongue, fauces, and œsophagus. It is sad to see the state that their low moral condition has reduced them to; syphilis in all its forms, is committing great ravages among them, there are few of them either males or females who are not infected by it.

Natives from the low country often suffer severely on first going to the hills. They are subject to attacks of fever, also thoracic and abdominal affections; but this is chiefly owing to deficient clothing, great exposure, and want of proper houses. No race of Europeans could exist in such a climate, living as they do, without more clothing than they are accustomed to on the plains, badly sheltered, and often very indifferently fed. But those who have the means to do it, and have learned the necessity of clothing themselves warmly, not sleeping on the ground, and living in more substantial houses, thrive well. They become more muscular, more active, and less apathetic. Those who have lived thus, for any length of time on the hills, prefer the climate there, and object to return to the low country. Sickly natives should never be taken to the hills, they have not sufficient stamina or energy to resist the first effects of the climate.

A gang of native prisoners has for some time been kept at Ootacamund, composed chiefly of men transferred from the jail at Coimbatore. They are well fed, comfortably housed,

and warmly clothed. Those among them who were sickly on arrival, particularly if they were subject to bowel-complaints, could not stand the climate; but the others who arrived in a more healthy state, improved, became stouter and able to work with much more energy and endurance than on the plains.

PALAVERAM, *April* 1861.

ART. III.—*Notes on the value of Cinchoniæ Disulphas, in the Treatment of Intermittent Fevers.* By JAMES KIRKPATRICK, M.D., Surgeon, Mysore Commission.

THE following twelve cases are cited in support of the growing opinion, that in the Disulphate of Cinchonine, we have a remedy second only, if not very nearly equal, in efficacy to the Disulphate of Quinine, in the treatment of periodic fevers. Some of the earlier experiments in the use of the Disulphate of Cinchonine threw discredit on its value, and, consequently, in comparison with the similar salt of Quinine it has scarcely been used. Of late years, however, many practitioners in several parts of the world have borne testimony to its good effects in the treatment of intermittents, and the object of this paper is to add thereto. Besides the twelve cases now given, which are not specially selected on account of success, but are merely a few of the ordinary cases of intermittent fever treated in the Pettah Civil Hospital at Bangalore, I have used the Cinchonine in a considerable number of others, and the impression on my mind of its great value as an antiperiodic is very decided. It appears to me to be nearly, though perhaps not quite, equal to Quinine in certainty, and the dose of it required to cure a fever to be nearly the same; the larger doses, however, of 15, 20, or 30 grains cannot be so advantageously given, as the Cinchonine seems more apt to occasion nausea or vomiting than Quinine. But it must be stated that in some cases the Cinchonine decidedly failed, and Quinine subsequently effected a cure. To add to my own testimony I may mention, that Dr. Oswald, in reporting upon the Shemogah Hospitals for 1860, says, "I find the Cinchoniæ Disulphas very nearly, if not quite, as efficacious as Quinine." Though the Cinchonine is thus so efficacious singly, it seems probable that the salts of the two principal alkaloids from the Cinchona barks may be even more advantageously used in combination. A propor-

tion which has been recommended is two parts of Quinine to one part of Cinchonine; but equal proportions seem to have acted perfectly satisfactorily in several cases. Resort to the use of the Disulphate of Cinchonine is of course prompted only by economical motives, for as to safety and certainty of cure, Quinine is worthy the universal confidence placed in it; but its importance in this respect, considering its efficacy, may be very great if its production in quantity can be carried on at present prices. This is shown by the following statement: the price of Howard's bleached Disulphate of Quinine was very recently 11*s.* 6*d.* an oz. in London, of Herring's unbleached Hospital Quinine, an article equally as good as the bleached, 9*s.* 6*d.*, whilst that of the Disulphate of Cinchonine was only 5*s.* 6*d.* per ounce.*

Case 1.—Febris Intermit. Quartana.—Sheik Hoossain, age 35, male, Mussulman, admitted 3rd October 1856. States that he has been suffering from quartan fever since the last six months, coming on regularly in the evenings, is looking ill and reduced in flesh, spleen enlarged, eyes tinged yellow, tongue foul, bowels costive; an emetic to be taken now.

4th.—Emetic† acted well, bowels not moved; Calomel grs. iii., Pulv. Pharbitis ʒ i. to be given now.

5th.—Bowels opened freely, this is fever day; Liq. Ferri. Pernitrat ʒ ½, Aquæ ℥ ii. thrice a day.

6th.—Had fever with rigors at 3 P. M. which left him in three hours; repeat Iron.

7th.—Continue medicine.

8th.—This is fever day; ℥ i. of decoction of Neem bark thrice a day.

9th.—Had fever as usual; cont. medicine.

10th.—Continue.

11th.—This is fever day; Cinchoniæ Disulph. grs. viii. now.

12th.—Escaped his fever, continue decoct. of Neem.

13th.—Continue.

14th.—No fever, continue.

19th.—Free from fever since taking the Cinchonine, discharged.

Case 2.—Febris Intermit. Quartana.—Mooneah, age 35, male, caste Pariah, trade peon, admitted 21st October 1856. States that he has been suffering from quartan fever since the last eight months, coming on regularly in the forenoons, is looking ill, spleen enlarged, eyes

* Disulphate of Quinine costs the Indian Government about 6*s.* 0*d.* per ounce, when obtained in quantities varying fron 100 to 1,000 lbs. annually. Cinchonine would probably be proportionately cheap if obtained at wholesale rates.—Ed. *M. Q. J.*

† The emetic used in the greater number of the following cases was Pulv. Fol. Tylophora Asthmatica gr. xx., Antimon. Tart. gr. i.

tinged yellow, pulse quick, skin hot, tongue foul, expects fever tomorrow. To take an emetic now, and a purgative tomorrow.

22nd.—Emetic acted well, has taken his purgative.

23rd.—Bowels opened freely, had fever at noon which left him at 3 P. M. ℞. Cinchon. Disulphat. gr. x. to be taken now.

24th.—Free from fever, tongue continues foul; Mist. Salina ℥ i ½ thrice a day.

25th.—This is fever day; Cinchon. Disulph. gr. v. now.

26th.—No fever; Liq. Ferri. Pernit. ℥ ½ thrice a day.

29th.—Quite well, discharged.

Case 3.—Febris Intermit. Quartana.—Unnapah, age 35, caste Gentoo, trade sepoy, admitted 28th October 1856. States that he has been suffering from quartan fever since the last three months, paroxysms coming on in the evenings, is looking ill, eyes tinged yellow, this is his fever day; ℞. Cinchon. Disulph. gr. x. now.

29th.—Had slight fever with rigors at 3 P. M., which left at 6 P. M. Apply a blister over the spleen; Liq. Ferri. Pernit. ℥ ½ thrice a day.

30th.—Blister rose well, continue Iron.

31st.—This is fever day, Cinchon. Disulph. gr. x. now.

November 1st.—Escaped his attack of fever, cont. Iron.

2nd.—Cont. medicine.

3rd.—This is fever day, repeat Cinchonine.

4th.—Continue Iron.

6th.—This is fever day, repeat Cinchonine gr. v.

7th.—No fever, discharged.

Case 4.—Febris Intermit. Quotidiana.—Nunjah, age 35, male, caste Gentoo, trade labourer, admitted 26th November 1856. States that he has been suffering from quotidian fever for the last three months, coming on in the afternoons, is looking reduced in flesh, tongue foul, pulse quick, bowels costive; an emetic now.

27th.—Emetic acted well, very high fever with rigors at 3 P. M. which left him at 6 P. M. Pulv. Pharbitis ℥ i., Calomel gr. iii. now.

28th.—Had very high fever at 4 P. M.; bowels opened freely; Cinchon. Disulph. gr. x. now.

29th.—Fever as usual; repeat 10 grs. of Cinchonine now and 5 grs. at noon.

30th.—Had slight fever at 4 P. M. which left him in an hour: repeat the Cinchonine.

December 1st.—No fever; Liq. Ferri. Pernit. ℥ ½ thrice a day.

2nd.—Free from fever; continue medicine.

4th.—Quite well, discharged.

Case 5.—Naganah, age 45, male, caste Lingayet, trade labourer, admitted 1st December 1856. States that he has been suffering from quotidian fever since the last month, coming on regularly in

the mornings, head-ache, vertigo, bowels costive, pulse quick, skin warm ; an emetic now.

2nd.—Emetic acted well, had very high fever at 8 A. M., which left him at noon ; Pulv. Pharbitis ℥ i., Calomel gr. iii. now.

3rd.—Bowels opened freely, had fever with rigors the same hour as yesterday ; Cinchon. Disulph. gr. x. now. and gr. v. at noon.

4th.—Had very high fever with rigors, repeat Cinchonine.

5th.—No fever, Cinchonine gr. v. thrice a day.

6th.—Quite free from fever, feels weak ; Liq. Ferri. Pernit. ℥ ½ thrice a day.

20th.—No fever ; cont. med.

26th.—Quite well, discharged.

Case 6.—Thimmeah, age 40, male, caste Brahmin, trade none, admitted 2nd December 1856. States that he has been suffering from fever and cold daily, since the last 20 days, coming on regularly in the afternoons, headache, tongue foul, pulse quick, skin hot ; an emetic now.

3rd.—Emetic acted well, had fever at 4 P. M. which left him at 6 P. M., bowels not moved ; Pulv. Pharbitis ℥ i., Calomel gr. iii. now.

4th.—Bowels opened freely, had very high fever with rigors at 2 P. M. which left him at 6 P. M. Cinchoniæ Disulph. gr. x. now and gr. v. at noon.

5th.—Had slight fever in the evening which left him in an hour, repeat Cinchonine.

6th.—No fever, feels weak, Liq. Ferri. Pernit. ℥ ½ thrice a day.

7th.—No fever, cont. med.

16th.—Quite well, discharged.

Case 7.—Febris Intermit. Quotid.—Age 35, male, caste Gentoo, admitted 9th December 1856. States that he has been suffering from fever and cold daily, since the last ten days, coming on regularly in the afternoons, pulse quick, skin hot, tongue foul, slight headache ; an emetic now, and a purgative at noon.

10th.—Emetic and purgative acted well, had very high fever with rigors at 2 P. M., which continued for four hours ; Cinchonine gr. x. now, and Saline mixture whilst feverish.

11th.—Had fever as usual, repeat the Cinchonine and Saline mixture.

12th.—No fever, Infus. Cinchonæ ℥ i. thrice a day.

16th.—Doing well, cont. med.

January 1st, 1857.—No fever since taking the Cinchonine, discharged.

Case 8.—Febris Intermit. Quotid.—Moonee, age 30, female, caste Gentoo, admitted 9th December 1856. States that she has been suffering from fever and cold daily since the last ten days, coming on regularly in the afternoon, headache, vertigo, nausea, bowels costive, tongue foul ; an emetic now and a purgative at noon.

10th.—Emetic and purgative acted well, had fever with rigors at 3 P. M., which left her at 6 P. M., Cinchon. Disulph. gr. x. now.

11th.—Had fever the same time as yesterday, repeat Cinchonine.

12th.—No fever, repeat Cinchonine.

13th.—Quite well from fever ; omit med.

14th.—No fever, discharged.

Case 9.—Nunjapah, age 40, male, caste Lingayet, admitted 15th December 1856. States that he has been suffering from fever and cold since the last 20 days, coming on regularly in the forenoon, headache, vertigo, eyes tinged yellow, bowels costive, spleen slightly enlarged ; an emetic now.

16th.—Emetic acted well, had very high fever with rigors at 11 A. M., which left him at 3 P. M., bowels not moved; Pharbitis ℥ i., Calomel gr. iii. now.

17th.—Bowels opened freely, had fever as usual yesterday ; Cinchon. Disulph. gr. x. now and gr. v. at noon.

18th.—Had fever with rigors at 4 P. M. which left him in 1½ hours ; repeat Cinchonine.

19th.—Escaped fever, doing well, Infus. Cinchonæ ℥ i. thrice a day.

24th.—Doing well, cont. med.

27th.—Discharged.

Case 10.—Febris Intermit. Quotid.—Booden Saib, aged 10, male, Mussulman, admitted 17th December 1856. States that he has been suffering from fever and cold since the last month, paroxysms coming on regularly in the afternoons, is looking ill, eyes tinged yellow, tongue flabby and pale, bowels costive, Pulv. Fol. Tylophora gr. xv. as an emetic now.

18th.—Emetic acted well, had very high fever with rigors at 4 P. M., bowels not moved ; Pharbitis and Calomel.

19th.—Bowels opened freely, had fever with rigors at 4 P. M. which left him at 6 P. M. Cinchon. Disulph. gr. v. thrice a day.

20th.—No fever : repeat Cinchonine.

21st.—No fever, Infus. of Cinchon. ℥ ½ thrice a day.

23rd.—No fever, cont. Med.

30th.—No fever, omit. Med.

31st.—Discharged.

Case 11.—Febris Intermit. Quotid.—Peeran, age 14, male, Mussulman, admitted 18th December 1856. States that he has been suffering from quotidian fever since the last six months, coming on regularly in the evenings, is looking very ill, spleen considerably enlarged, lower extremities slightly œdematous, tongue foul, pulse quick, skin rather hot, bowels costive, feels sick at stomach ; an emetic now and a purgative at noon.

19th.—Emetic and purgative acted well, had fever with rigors at 6 P. M. which left him at 8 P. M. with a slight perspiration, Cinchon. Disulph. gr. x. now and Saline mixture when feverish.

20th.—Slight fever at the same time as the previous day, swellings better ; repeat the Cinchonine gr. x.

21st.—No fever, bowels not moved ; spleen mixture ʒ i ½ now.

22nd.—No fever, bowels moved three times, repeat Cinchonine.

24th.—No fever, swellings gone down.

25th.—No fever, omit Med.

27th.—Quite well, discharged.

Case 12.—Febris Intermit. Quotid.—Kistnah, age 25, male, caste Brahmin, admitted 23rd December 1856. States that he has been suffering from fever and cold daily since the last eight days, coming on regularly in the afternoons, headache, vertigo, tongue foul, bowels costive ; an emetic now and a purgative at noon ; emetic and purgative acted well, had fever with rigors at 4 P. M. which left him at 8 P. M. with a slight perspiration ; Cinchon. Disulph. gr. x. now and Saline mixture when the fever is on.

25th.—No fever, Infus. Cinchonæ ʒ i. thrice a day.

26th.—Wishes to go home, discharged.

12*th March*, 1861.

Art. IV.—*Notes on a Case of Poisoning by the Jatropha Curcas, or Physic Nut.* By H. R. D. Marrett, Esq., Civil Surgeon, Salem.

On Tuesday, November 11th, 1848, my brother, who was then 22 years of age and of healthy constitution, ate at about half past eleven A. M., from 15 to 20 nuts of the Jatropha Curcas—at the time of eating them he supposed them harmless and felt no such irritation in the mouth as might have excited his suspicion. But at one o'clock, that is an hour and a half after eating the nuts, burning sensations of the throat and stomach came on, attended with great restlessness and a wish to evacuate the contents of the bowels. This was shortly followed by profuse purging, at first of dark fœcal matter, and then of thinned and nearly watery discharges,—the purging was attended by great pain and sinking of the abdomen and vomiting, which caused portions of the nuts to be discharged from the stomach. At about half past two o'clock, that is about three hours after taking the poison, the patient began to complain of cramps of the feet, legs and thighs—and after the purging had ceased, at three o'clock or a little later, these remained and formed the most prominent and painful symptoms of the disorder. They were so severe that repeatedly the patient sprang in agony out of bed, and

stamped his naked feet with all his force upon the ground, as if to flatten them, the cramp distorting them. When this failed he would beg those who were with him to press their feet firmly on the back of his or to hold his limbs.

These cramps did not long remain confined to the lower extremities, they affected, though with less severity, his arms, the muscles of the abdomen, and even those of the back; for occasionally there were convulsive twitchings of the back almost like those in tetanus. At nearly the same time as the cramp commenced, the patient began to lose the sense of hearing, and this slowly increased till about half past three, when he was so deaf, that he appeared insensible to the loudest voice calling in his ears: his sight at the same time became dim, so that he appeared uncertain, whether he knew those who were with him or not.

During all the early period of the attack, viz., from about one o'clock to four, the pulse was very small, thready and weak; the skin was cold, damp, and clammy; the features were sunken and contracted, and except when the agony of the cramp excited him, the patient appeared quite exhausted.

To relieve this state of collapse, hot brandy mixed with water, and wine and some spices, were given, and the patient was put in a warm bed, with hot bottles to his feet, and kept as still as possible, and the Linimentum Opii. was rubbed in the legs, when the cramps were most violent, but these means appeared unavailing either to relieve the cramps or to increase the vigour of the circulation, till about half past six, when the surface of the body began to grow warm and the pulse became fuller. From this time his state slowly improved, for with returning warmth the cramps became less severe, and after midnight they did not occur, more than about once in each hour, he obtained some sleep during the night, and in the morning was in every respect better.

Through the day following the attack he remained totally deaf, he had occasional slight cramps in the legs and other parts, and some tenderness on pressure of the abdomen; for this twelve leeches and fomentations were applied, and produced immediate relief. He took broth and beef tea during the day and complained of little pain. That which appeared to annoy him, was his deafness, which was complete, and which was accompanied (as his actions indicated, for he could scarcely be induced to speak) by strange sensations in the ears—this night the patient slept very well, being only occasionally disturbed by cramps.

On the second morning after the attack, the patient was awakened by the sound of the church bell, and except for the weakness which his illness had produced, he was now well. What is most strange is, that although during his illness he had appeared quite conscious, yet he never retained any recollections whatever of all that had happened, and he cannot even now recall any of those events of his illness, which occurred later than the profuse purging.

Besides my brother, who was a student with myself at Bartholomew's, three or four other pupils of this hospital were in like manner affected, but their sufferings were not of so alarming a nature, as the quantity of the nuts which they had taken, was smaller. Yet the symptoms were in all of the same character, with the exception of the deafness and loss of memory, which were observed in none of them.

The Jatropha Curcas is a native of South America and Asia—it has purgative properties, and is sometimes given instead of Castor oil, but very rarely. Pelletier and Caventon analyzed these nuts, under the name of Croton seeds, and extracted from them a volatile acrid acid called Jatrophic acid. In large doses these nuts are energetic poisons.*

October 1860.

Medical Topography of Cochin. By Francis Day, Esq., F.L.S., Civil Surgeon, Cochin.

Cochin, situated on the Western or Malabar Coast of India, is in Latitude 9° 58′ North, and Longitude 76° 18′ 30″ East, on a slip of British ground, about two miles long and one wide. It is hemmed in on the land side by the territory of H. H. the Rajah of Cochin. The Northern portion, called *Vypeen*, is divided from the Southern or *Cochin Proper*, by a deep river.

The first start Cochin got in the world appears to have been in 1341, when the river, which takes its rise in the Western Ghauts, and up to that period flowed into the sea at Cranganore, is said suddenly to have altered its course and found its present outlet.

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* For an account of the medicinal properties of these nuts, see Mr. Waring's paper at page 223 of Vol. II. of this Journal.—Ed. *M. Q. J.*

Subsequently, the alterations were more due to external than natural influences. On December 24th, 1500, the Portuguese, under Admiral *Cabral*, made their appearance. In 1502, *Vasca de Gama* obtained permission from the Rajah to build a factory; he then went away to Europe: but returned in 1525 as Viceroy of all the Indies, though merely to find a temporary grave. On September 2nd, 1503, *Albuquerque* arrived with six ships from Portugal, and found the Rajah a fugitive from his own subjects, and his antagonistic neighbours. Having assisted the Rajah to re-establish his authority, the Portuguese in return received permission to build a fort; and it was probably in that, or the following year, the first Roman Catholic Church in Western India was erected.

In 1662, the Dutch attempted to wrest Cochin from the Portuguese, and on January 6th, 1663, took it by storm. From this period *Goa* became the chief Portuguese settlement in India.

On the Dutch entering into possession, they found the old Fort too large, so demolished it and erected a smaller one, calculated to hold 4,000 troops in peace, or 15,000 during war. It was built of stone, and surrounded by a rampart, ditch, and other works. Neither was a canal, a Dutchman's paradise, wanting: the remnant of one may still be seen, as well as smelled.

The Dutch rule was inaugurated by persecuting the Roman Catholics, pulling down part of their magnificent Cathedral, and turning the remainder into a store room. They did not desist until the town was nearly deserted. Having taken Cochin by force, and held it by violence, they immediately hoisted the white flag to a small British column, after the first shell had been fired, on the night of October 19th, 1795, when all the Dutch possessions on the coast were ceded to the British.

An account of the Portuguese and Dutch institutions cannot form any portion of a Medical Topography of the present time, unless with reference to the numerous Eurasian population, and the greatly improved health of the place since the commencement of the British rule. All the Dutch houses have already crumbled into dust, their fort and public buildings were blown up in 1803; but the Portuguese two storied houses still remain in the form of streets, running in a south-westerly direction; though the hand of time is now destroying some of them.

Cochin must be designated a healthy place. Though each succeeding Civil Surgeon has vainly complained respecting the total absence of all sanitary measures, perhaps the same complaint is the rule in other civil stations.(1) The following remarks, which gloss over but little, must not be misconstrued into an attack against any local civil authority, who, no doubt, in doing nothing,(2) is influenced by the best intentions.

The British territory may be divided into Cochin Proper and Vypeen, which are situated at the extremity of long islands, the remainder of both of which belongs to the neighbouring Rajah. Vypeen is the last quarter of a mile of the southern end of one Island. Cochin, one and a quarter miles of the northern extremity of another, the two being divided by the Vypeen river, which is nearly half a mile wide : on their east side is the backwater : along their west beats the sea.

The town of Cochin is divisible into the portion within the limits of the old fort wall, and that which has sprung up exterior to it. Of the latter, the most important are the Culvetty and Muttencherry bazaars, which extend about ¾ of a mile in an easterly direction along the backwater's bank, until they merge into the bazaar in the Rajah's territory.

A stranger only remaining for a few days in the place, who does not care to examine into the condition of the smaller streets and lanes, sees only the old parade ground, about 250 paces square, and other spots covered with verdant patches of grass, smooth laterite roads and streets, which give to the town a neat and cleanly appearance. But his olfactory nerves will soon be greeted with odours which

(1) The following occurs in the yearly report of a Medical Officer, formerly in charge of Cochin. "The Native part of Cochin is still as filthy, "and the inhabitants as disgusting and dirty in their habits and dwellings, "as has been noted in former reports. It is surprising that health exists in "such situations, for the amount of sickness is wonderfully small. The "salubrity of Cochin is undoubted : reasoning by analogy with other loca- "lities, it should be little better than a pest house."

(2) As a predecessor remarked, "It is the duty of the Civil Surgeon to "use every endeavour to improve the sanitary state of the station to which "he is attached, but his efforts must be confined to suggestions, as he has "no power to enforce his opinion. But the Police as a body in British "Cochin are totally inefficient : sanitary regulations may be framed, and "measures for the public good suggested, but their execution appears to "be no one's business."

Years have elapsed since this observation was penned, but it is as applicable to the present time as to the past.

are far from pleasant, and from which he will find escape impracticable, more especially near the remnants of the old ramparts, in the Culvetty and Muttencherry bazaars, along the banks of the river and sea shore, without enumerating the bye ways, and the vicinities of the native houses.

British Cochin is a flat and sandy plain, only a few feet above the level of high water mark. The whole of the range of land [long islands], situated between the sea and the backwater, appears to be one sand bank, which was once most probably covered by salt water; but this must have been many centuries since, because the Portuguese who took possession of the place above 350 years ago, had a fort situated at about one mile beyond the present limits of the shore, on the southern side of the entrance to the Vypeen river; a few years since, the sea having receded very considerably, numerous fine granite stones were recovered from their outworks. Three miles to the south of Cochin still stands the arch of the eastern end of a fine Roman Catholic Church, the body and western extremity having been washed away by the sea. Three miles to the north of Cochin, within the memory of many residents, another church has been completely covered by the sea, whilst even now the encroachments at the mouth of the Vypeen river are causing great alarm.

Cochin within the Fort limits is about 800 yards across. Its walls have been thrown down, but mounds of earth, the remnants of the old rampart, exist on part of its W. or sea face, also along a portion of its S. and S. E. fronts. External to a portion of the old rampart, on its S. and S. E. front or land side, the old fort ditch still remains; some portion being a tank, some paddy fields, and the remainder a foul swamp.

The Fort, or Town Proper, though situated directly on the sea, has an old mound, keeping the sea breeze away from it. On the land side also there is a mound in one place, and for 200 yards where the rampart has been removed, the foundations have been dug up for repairing the roads, leaving irregular pits from 3 to 6 feet deep, and 18 feet wide, which are used for the reception of house sweepings and other filth, besides being a favourite spot for natives to employ as a *Place d' Aisance*, which makes the town unsavoury, as the land wind comes almost directly over it, in its passage to the town. Beyond this locality is the swampy paddy field; about ¼ of a mile E. N. E. is the Dutch canal,

and a little further to the N. E. is a tank, which from being in the rear of the Moplah bazaar, and just hidden from the road, is kept in a very foul state. I must not omit to mention, that along the side of the canal, between it and the Moplah bazaar, are filthy paddy fields. The land wind, it is needless to observe, is much dreaded in Cochin.

The majority of houses occupied by both Europeans and Eurasians within the Fort, are of Portuguese erection, they are usually two storied; the walls are about an average thickness of $2\frac{1}{2}$ feet; the roofs are high and tiled; the windows comparatively small, and owing to the streets running in a N. E. direction, the rooms are hot, whilst there is much reflected heat. The most objectionable style of house appears to be that of enclosing a square, and making a garden within this enclosure: this, in the monsoon time, causes dampness, and thereby engenders bowel affections.

Each of these houses has a cess pool, which appears never to be cleaned out. In one street the privies of four domiciles communicate, and in the rainy season the ground floor is sometimes flooded: fevers of a putrid type were thus occasioned in the time of one of my predecessors, and I have seen one case myself which had evidently originated from the same cause. Laws not having been contemplated for such a nuisance, nothing can be done to obviate it. I need hardly observe, that cockroaches and mosquitoes swarm.

The drainage of Cochin appears in olden times to have been well cared for: of late years, amateur engineers have been in charge of the drains, and water refusing to run up hill, matters have retrograded. The Dutch, or perhaps their Portuguese predecessors, built stone drains along each side of every street, these ran into two or three main sewers, one of which now filled in, opened on the W. front, one on the N., and probably another emptied itself into the Fort ditch on the E. side. To keep drains in order in the Mofussil, the inhabitants should have a personal interest in preserving them; at the present time Government pays all expenses connected with them, and often when persons require a stone, it is procured from a drain; and should soil be wanted for a contemplated garden, it is frequently abstracted from the same source. Drains are cleaned out by the convicts once or twice a year, just before the monsoon sets in: this is a very necessary precaution, as during the remainder of the year they are usually employed as dust holes.

The roads already alluded to are formed of well beaten laterite, excavated from the old fort walls; some are excellent, but many have deep open drains across them, which require repair. From the constant deposit of laterite, they have become gradually raised above the level of the ground, on either side of which in the monsoon time water lodges. Communication between Cochin and Trichoor, or Quilon and other places, is principally carried on by backwater.

Institutions of Cochin.—First come the New Police, who should be amongst the foremost to assist in sanitary measures, but unfortunately these appear beneath their notice, at least their efforts have hitherto produced no good effects.

The Friend-in-Need Society, considering the importance of this rising port, is badly supported. The Rajah, the British Resident, and the Dewan, subscribe about Rs. 130 a month, the whole European, Eurasian, and Native population about Rs. 70 more. Government liberally granted Rs. 2,000 towards building a poor house, which is calculated to contain 60 persons.

On the capture of Cochin, an Orphanage existed, to the funds of which the Dutch Governor helped himself freely. Probably it originated in the time of the Portuguese, as their successors appear to have been too lethargic to have instituted any philanthropic measures. The British realized its remaining funds, and divided the proceeds amongst the orphans.

The Leper Hospital at Palliport was built in 1728, I shall allude to it under the head of Leprosy. Of the Dutch Hospital and Dispensary no records remain, excepting a bit of charred wall, stated to be a portion of the former, and an old plan of 1780, in which the site of the latter is shown *on paper*.

The beggars are almost a Dutch institution. In olden times they were permitted to enter the fort, to ask for alms on Fridays and Saturdays; on other days of the week, charity could not be obtained, and they were rigidly excluded. This custom has unfortunately been kept up, and on those days, the town is inundated with beggars, as many as fifty or sixty may be seen in one company, and when cholera or small-pox prevails in the surrounding country, they no doubt bring it into the place sooner than it would otherwise come. Amongst the town's-people, far too many able bodied East Indians, who are too proud to work, live by begging.

A Protestant Free School exists, which has a Government Grant-in-Aid, but it is by no means a first rate one. The Roman Catholics have another, which is worse ; and there are many private ones in the place.

The Dispensary is well attended, and though its position is well placed outside the Fort, with the lower caste Hindoo quarter to its S. E., and the Moplah quarter to the E. N. E., it is very badly situated for salubrity, having a foul swamp, the remains of the Fort ditch abutting to its W. and the Dutch Canal, and moist paddy fields, a short distance to its E. For the sake of appearance, and contrary to the request of the Civil Surgeon, it was faced East and West, consequently, the full force of the land winds, sweeping over the canal and paddy fields, flows in on one side, and the sea breeze, over the foul swamp on the other. These are fertile sources of fever. A Small Pox Hospital was raised by public subscription, but was abandoned, as it was found too close to the Dispensary. A dresser's house has also been raised by public subscription in the compound.

The Cochin Jail only requires a passing notice. It is calculated to hold 60 prisoners, allowing each 519 cubic feet of air, but its lower rooms are too damp for keeping human beings in during the monsoon. A plan exists here which medical remonstrances have failed to obviate, viz., each convict keeps a semi-porous earthen chatty inside his cell, where he goes for the calls of nature, the odour thus induced is far from pleasant ; twice a day they all march in procession through the town to the sea beach, and there present their votive offerings to the sea goddess.(1)

The lighthouse is still that portion of the tower of the old Portuguese Cathedral, which was partially spared by the Dutch for keeping their bales of goods in. It is certainly hardly appropriate to the first port on the Western Coast (that is to be). A new one was sanctioned and completed in 1858, but on the day it was finished it subsided.

The churches are not handsome, but curious from their antiquity ; the oldest screen in India is said to be in the Vypeen Church. Some of the grave stones are magnificent,

(1) In the report of the *Director General of the Medical Department*, for the year 1858-59, it is observed : "*Dr. vanSomeren*, in his report, draws "attention to the highly objectionable practice of placing earthen vessels "for the purposes of nature, within the cells of the prisoners. This practice "was continued until the outbreak of cholera in January 1859, when the "Jailor removed the vessels outside, and *Dr. vanSomeren* cannot but con- "nect with this proceeding the arrest of the epidemic."

but it is a lasting disgrace that the inhabitants of the town should be using them as bridges across drains, and entrances to door-ways of low public houses; but such, alas! is now their fate.

The native town of Cochin may be divided into two portions, the Moplah bazaar running E. by E. S. E., a short distance from the bank of the backwater, for nearly $\frac{3}{4}$ of a mile; the road then crosses the entrance to the Dutch canal, and about 50 yards further on, British territory merges into the Rajah's, but the bazaar continues on two miles beyond this point, and terminates abruptly at the Rajah's palace, which faces the backwater, beyond which is Jewstown. This bazaar is principally inhabited by Nairs.

From the S. E. proceeding onwards towards the E. runs the Amaravady road, a quarter inhabited by the lower classes of Hindoos and East Indians.

Along the sea face, after leaving the Black Protestant Church on the left, and Scandal Point to the right, the Sea Beach road is reached; which at the end of about $\frac{3}{4}$ of a mile, joins the Amaravady road just mentioned. In this part the true Mahomedans generally live in small communities.

The native houses have all raised floors; the generality of houses of the poorer classes are made of split bamboo mats, or else of leaves from the palmyra tree. The roof is formed of the leaves of the cocoa-nut tree.

Houses of a slightly superior description have wooden walls, and tiled or thatched roofs; whilst others, belonging to the richer classes, are built of laterite, and tiled.

Houses, unless in the bazaar, are as a rule placed underneath cocoanut trees, or in the midst of a small garden, where plantains, cocoa-nuts, and the betel, and pepper vines are grown, as well as a few vegetables.

The native leaves his parent's house at an early age, and with his mat hut, boat, fishing lines, and a few cocoa-nut trees, soon becomes quite independent.

Perhaps no people are so fond of encroaching as those of Malabar. A few months since, a large Portia tree [*Thespesia populnea*] was standing when I visited hospital in the early morning; that evening it was lying flat on the road, the next morning it was gone, and by evening a house occupied its site. In 48 hours had I not watched the process, I should have believed a house had stood there for years.

I have adverted to the filthy habits of the Eurasians and

others, who should know better: I have mentioned that the drains are considered as dust holes, and the roads as public privies; but there are one or two other subjects still untouched upon. Cattle roam in droves over the place. About 120 of the bovine tribe, and 190 goats, all manage to live on the small quantity of grass produced in the place, which being from 4 to 6 acres, gives at least 20 head to an acre, excluding sheep. From these our milk is obtained, but as the poor beasts have to eat any offal they can find to keep themselves alive, the milk consequently cannot be sweet, nor the flesh wholesome; but no enquiries can be made, or the butcher would give no meat, and the milkman no milk, in these non-compulsory days.

It is in my opinion very desirable that the cess pools which are nuisances, should be closed, that parties should be obliged to send away their house sweepings, and bury them near the sea beach, and that cattle should be prohibited from prowling about at large. The question as to how this is to be done rests with the civil powers, but a suggestion may not be inapplicable.

If private individuals cannot afford to remove their sweepings, surely a dust cart could be kept to go round once or twice a week, or the convicts might be divided into gangs, with wheelbarrows or carts, and thus keep the place clean. At all events, sweepings should be carried to the beach and buried.

Stray cattle are much more easily managed. If all parties who wish to keep them in the town, paid a small sum monthly, and tethered the beasts, accidents would be obviated; and the money received for that, together with fines for stray cattle, might pay for the much needed dust cart. I may here mention that pigs are always rooting up the grass by the side of the sea beach road, so that no one can ride or make use of it.

Cochin is well supplied with fish and poultry. Mutton also is pretty good, though dear; beef can very rarely be procured. The use of pork is to be deprecated, as the pigs are fed only on the refuse of the place. There is also a fair supply of vegetables. [See Botany of Cochin.]

The water in Cochin is found at from about six to ten feet from the surface; it is saline, from the free percolation that occurs and from its proximity to the sea, and is popularly believed to cause Elephantiasis Arabum, or Cochin Leg; so it is very unusual for Europeans to drink any but that supplied

to them, by Government, from Alwaye, 16 miles off. The origin of this custom is lost in obscurity, but it is worthy of remark that a change to this small place is very conducive to health. An experiment is now about being tried, as on May 1st, Government ceases to supply Alwaye water to the inhabitants; a few years hence will probably demonstrate most satisfactorily, whether abstaining from Cochin water gives immunity from Cochin leg.

The Bar.—The roadstead is quite unsheltered and open; the course of the coast nearly from N. to S., consequently vessels anchored outside in the S. W. monsoon, have a lee shore to contend with; should their anchors drag or their cables part, their only way of escape is to run for the inner harbour if they can cross the bar. During a violent storm in May, 1858, all the vessels outside had a most narrow escape; some slipped; providentially all got safely away.

The bar runs nearly N. to S. across the mouth of the river, and 1¼ miles from the shore. In its narrowest part, it was found by *Lieut. Taylor* to be about 10 yards in width [i. e. from W. to E.]. At low tide, in smooth weather, it has 11 feet of water upon it; at other times, about 13 or even 15, consequently, vessels loaded to about 12 feet can generally cross without bumping, but in rough weather, perhaps 9 to 10 feet is as much as can with safety be managed.

Geology.—The soil is, as already mentioned, as a rule sandy, but in places, at a moderate depth, a substratum of clay has been observed on the banks of the backwater; the soil is alluvial, mixed with sand.

Climate.—The S. W. monsoon generally commences in the latter part of May or the beginning of June, and continues until the end of August or beginning of September. During this period the fall of rain is sometimes 80 inches. The monsoon is usually ushered in by thunder and lightning, and during its continuance the strength of the wind, from the S. W. is severe, occasioning feverish attacks. After the first downfall, a break commonly occurs. Until the setting in of the N. E. monsoon early in November, the weather is rather close, causing hepatic derangements, and fever with hepatic complications. The fall of rain in the N. E. is much less than in the S. W. monsoon. During December, January, and February, the nights are cool, and often cold from the land wind, which commences about 7 p. m.; the atmosphere is foggy at night time, and there are heavy dews. December and January are the most dangerous

months in the jungles, severe remittent fevers and agues prevailing, cases of rheumatism and chronic venereal, suffer greatly at this period. No house should be so situated as to receive either the monsoon or the land wind, in its front or rear, but it is better to face the monsoon than the land wind. Though the weather is often hot, close, and sultry, the thermometer rarely rises above 90°. The amount of rain fall, as might be anticipated, exercises great influence on both the heat, and land winds. A slight monsoon augmenting the heat, and closeness of the atmosphere, and a heavy one so saturating the country with moisture, that the land winds in December and January are most severe, occasioning bronchial, and thoracic affections.

It may not be amiss to mention in this place that the climate is unfavourable to animals : sheep do not thrive ; cows are miserable creatures, and horses often go weak in the loins.

Resident *Europeans* are few in number, but with the exception of those months when the Port is closed, there are many non-residents, such as sailors. Though the mercantile houses are without doubt too many, for the size and importance of the Port, still they give employment to many persons.

The *Eurasians* are mostly of Portuguese descent. The Portugese appear to have done much more towards populating this and various other parts of India than their Dutch successors. But many (so called) Eurasians are merely the descendants of those natives whom the Dutch inhabitants dressed up in trowsers. These people seem to have some vague idea, that in some good times which are coming, they are destined to govern India, and [though there are many bright exceptions,] instead of persevering to improve their condition, they mourn in idleness the departed grandeur of their noble ancestry—an ancestry, which even if it would own such descendants, would hardly have reason to be proud of them. A predecessor of mine remarked in his yearly report : "that to all the indolence of the Native, they add a pride, which prefers relief by begging, to any laborious profession ; but they must dress better than their neighbours, and ape a gentility, to which their circumstances give them no claim."

The Native *Christians* [apparently a title of courtesy,] may have a little more energy than the Eurasians, and are divisible into four orders. The Syrian, the Romo-Syrian,

the Roman Catholic, and the Protestant. Without entering into theological controversies, I may mention that the first three are, according to the Missionaries, worse than the heathen around them, and as far as I am able to judge, the Protestant converts are no better than the first three.

The female native Christians and Syrians wear white jackets, as a distinctive mark from the Hindoos and others. They rank as Sudras, but slaves becoming Christians in an adjoining state, cannot claim a right to Sudra privileges. In certain places, by some legal jugglery, Hindoos, on conversion, lose their landed property. But there seems very little trouble in Travancore at least, in changing frequently from one religion to another, as suits the convenience of the natives.

The *Hindoos* are the predominant race of the country, and divisible and subdivisible into about 34 grades.

The *Brahmins* consist of two distinct classes, the Namboories or proper caste of this part of the country, who take precedence of any Potie, or foreign Brahmin. They eat sugar immoderately, but abstain from meat or spirits, and would as soon devour a child as a hen's egg. The eldest son only marries, a proceeding opposed to the customs existing in other parts of India, as well as to the Brahminical law.

The *Chutryens* are next to the Brahmins, but they are very few in number. The most important of them is H. H. the Rajah of Cochin. The males do not marry, being apparently unable to obtain pure caste wives.

The *Vushyens* are so few in number, that any notice of them is not requisite.

The *Nairs* or *Sudras.*—They generally live in comfortable houses, and are divisible into eleven grades. Vishnu is their peculiar deity, but they often wear the mark of Siva on their foreheads. Properly speaking, they are military, and in what they no doubt considered the good old times were expected forthwith to cut down a Teer, or any of a lower caste who approached them too closely; whilst they themselves ought not to touch a Brahmin, Chutryen, or Vushyen. Highest in rank are the Kirut, or Kirum Nairs, who are consequently permitted to cook on public occasions, as their touching the food can defile none.

Like other Hindoos the females are married at a very early age; but unlike Hindoos in general, widows are not prohibited from taking another husband. The marriage

ceremony is a simple one, easily entered into, and as easily annulled. The head of a family wishing one or more of his daughters nominally married, requests the services of a Brahmin, who for his trouble receives a few annas and some clothes. The family and friends having been collected, the bridegroom ties a piece of string, to which a piece of gold is attached, round the bride's neck, her relatives finding the same. The bridegroom may remain in the house and receive his food for a few days.

When the bride attains the age of 14 or 15, she looks about for a husband. (Husband number one, being nobody.) An eligible young man having appeared, he presents her with clothes, and they are married ; but as soon as they are tired of one another, they separate and choose other partners ; but as from this moral law it results, that no man knows his own father, inheritance descends in the female line.

Sudras may eat anything but beef ; are very fond of pork, and imbibe spirits rather freely.

None of the inferior races, the following of which are the most important, have any covering above the waist. It appears to be illegal in the Rajah's territory, but of course is not so in British Cochin.

Teers, or *Chogans*, are cultivators, and should remain 12 paces from a Nair, and 36 from a Brahmin; they are a drunken race.

Mucuas, or Fishermen, eat beef.

Kanakas, or Toddy drawers, who are a step lower down, do not eat beef.

Slaves.—" A name unknown in the British dominions," as the Officer commanding British troops, at the capture of Cochin, informed the Dutch, when they asked leave to carry off their slaves. In the Cochin state three slave castes exist, the individuals composing them being unable to possess property, but being themselves real property attached to the soil on which they live, or personal property attached to their owners. A few years since, in Travancore, where there are four large slave castes, it was decided that no recognition of slavery should be taken in their law courts ; a poor boon, slaves not being permitted to go near them.

Slaves are divisible into *Pooliahs*, *Pellers*, or *Churmurs*, who often will not eat beef, and wear grass or leaves for clothing. *Wooladahs*, who live in the jungles, and are huntsmen. And *Pariahs*, who make baskets and such like work, and eat any offal they can find.

The jungles again have distinct races which rank higher than the Naidis. First, the *Mulcers*, who live half way up the hills, and seem to have little religion.

The *Kardahs*, or true Jungle people, [from Kardah, a Jungle] live on the tops of the hills, near Trichoor, and appear quite unamenable to malarious fever, excepting when they descend into the plains. Their sole marriage ceremony, which does not appear very binding, is an interesting performance. The young female who intends taking a husband chooses a day, on which all the eligible young men assemble, each having a stick in his hand. The bride elect is covered over by a large pile of leaves on the ground. The males forming a ring, dance round; whoever pokes her under the leaves with his stick, provided she seizes it, is the lucky swain. Even brothers are allowed to try their best chance. Perhaps she agrees beforehand so as to know, who's that tapping at the door!

The *Naidis* are a wandering, outcast, abject tribe, so impure, that hardly a slave will touch them. Roving about in small companies, or dragging out a miserable existence in wretched hovels, they snare birds or small game, and howl at a distance, at all passers by, for charity, which, if given, they must not advance to receive, but, waiting till the donor is far away, they rush to seize and secrete it before it is taken from them by force.

Mahomedans are almost entirely of two classes, and are considered to be the offspring of Arab or Mahomedan fathers, by Hindoo mothers. Those who are born either in the Cochin territory, or farther north, are generally known as Moplahs, those who come from more southern parts as Lubbays. These form much of the trading population of the place, and live mostly at, or around the districts of Culvetty, Muttancherry, and the adjoining territory.

Jews consist of the white and black varieties, the latter being the result of intermarriage with the natives around them. The former, considering themselves as the only legitimate Jews, do not admit the latter into their places of worship, consequently they have separate synagogues. The white Jews form a small pharisaical community of about 170 souls, in a place called Jew's town, close to the Rajah's palace, three miles from Cochin, where they have been located, it is believed, since 1565. They are thought to have had settlements on this coast as early as A. D. 500. They appear to have been always protected by

the Cochin Rajahs, and never to have been oppressed by the British, though the European nations who preceded us seem to have treated them with the greatest inhumanity. Black Jews also are found in Jew's town, Cochin, and Ernacollum. They appear mostly to trade in skins, poultry, and caps, which they make for the Parsees in Bombay.

The loose morality which obtains in this part of India, excepting as regards sanitary or medico-legal enquiries, is too well known to require notice.

Amongst the lower classes of natives, the word Truth seems almost unknown, at least false charges are framed, with the most magnanimous disregard to it, and false witnesses swear to matters where facts are of no consequence, in comparison with the evidence they have been suborned to give. No officials are ever safe from the attacks of the lower classes.

A curious medico-legal case arose a few years since, which well illustrates the vindictiveness of the natives. Two men quarrelled, bitter feelings ran high, and one of them determined to sacrifice his blood for the purposes of revenge. Having obtained his adversary's knife, during the night he went outside his opponent's door, and then and there cut his throat; but, either his arm slipped, the knife was sharper than he thought, or he carried his incision deeper than he intended. He was found dying, and with his last breath declared that his neighbour did the deed. He evidently did not expect what soon ensued, viz., a fatal termination. Fortunately, he only forfeited his own life to his villany, as by chance the true facts came out. This reminds us of the case told in the *Indian Journal of Medicine*, of a Rajpoot who drowned himself in his neighbour's well, in hopes that his ghost would haunt his neighbour's wife. A judge not many miles from Cochin was enquiring into a case, when a Hindoo came and demanded an immediate hearing of a complaint he wished to make. On being told that he must wait, he threatened to throw himself forthwith from a cocoanut tree, if kept in suspense. At length when all were wearied of his importunate interruptions, he was told that there were plenty of excellent trees close at hand. About ten minutes subsequently, a heavy fall was heard, and the dead body of the unfortunate man was found at the foot of the nearest cocoanut tree, from the top of which he had precipitated himself.

Decency is even less regarded than truth: and though the

new Police at first prevented that wholesale violation of it, which was so very disgusting, in all the bye-ways, public roads, and even streets of the town, old habits are rapidly re-assuming their sway, and the new Police Act on this subject is apparently not acted upon.

Personal cleanliness is less observed here than in most parts of India. Bathing is considered by the native Christians and lower classes of Hindoos as a necessity once a month, but of course higher caste individuals wash before every meal, and always bathe after being polluted by the touch of any one of a lower caste, or even of an European. The medical man himself being considered an unclean beast. The Romo-Syrians shave their heads once a month.

Demoniacal influence is believed in by all castes. Hysteria is considered as a certain sign of the presence of an evil spirit, and various charms are used to exercise it; should they be insufficient, a thick bamboo is often called into requisition, and the spirit exercised by club law.

Small-pox is much dreaded, owing to the belief that it is caused by a female evil spirit, cholera being also due to another malevolent sister spirit; consequently any who die of either of these diseases or commit suicide, or women who die undelivered in cases of parturition, are all considered as suffering punishment for some sins previously committed; they are usually denied funeral rites, and their deaths are believed to disgrace their family. Their corpses are often left to be devoured by the beasts of the field, and the fowls of the air. One morning, at an early hour, a man was found dying of small-pox in a wet paddy field, not far from the Ernacollum hospital; the poor creature was just able to say that his loving relatives finding him on the previous night unable to move, conveyed him to that spot, and decamped, leaving him to die.

VERTEBRATA.

Mammalia.—Two small species of bats [*Vespertilionidæ*] are found here; also the flying fox [*Pteropus Edwarsii*], said by *Colonel Sykes* to be only eaten by the Portuguese in Western India, an observation inapplicable to Cochin, where all castes who eat flesh will devour this animal whenever they can get it.

Amongst the *Felidæ*, with the exception of dogs and cats, the water dog *(Lutra nair)* only is found.

Of the true *Cetæ* I have seen no specimens. A few years since a whale having crossed the bar, found him-

self in the backwater, where he quietly remained for about ten days; the natives became greatly alarmed, and none of them would cross the river in their boats. It was at last killed, and the oil exported to Europe. The porpoise [*Phocæna Indica*] is nearly always present in the backwater.

Amongst the *Glires* are the bandicoot [*Mus bandicota*], house rat [*Mus decumanus*], musk rat [*Mygale Indica*], and at least two species of mice. In the porcupines [*Hystricidæ*] I must remark on the existence of a family of orange coloured porcupines, near Trichoor, who do not live in the same locality as the common variety [*Hystrix leucurus*].

Amongst the *Ungulatæ*, merely domesticated animals, are to be found. Cows are in numbers far too great for the small amount of grass which grows in the place, and are allowed to roam about wherever they like, often committing slight, and occasionally mortal, injuries on innocent foot passengers. Goats are kept in large flocks inside houses, and are turned out every morning, to find their living where they can. Nor should I omit donkeys, a race of animals which, though not sightly to behold, appear to find favour, in consequence of their sweet-toned voices, as for no other reason can I discover that they are at present kept.

Aves.—In the following summary of land birds, those only are included which have been shot by myself or which I have been able personally to examine; it is not intended as a complete list, but an approximation which might easily be enlarged.

The Ægyptian vulture, [*Neophron percnopterus*] generally known as the common filth bird of India, and usually to be found near all large stations, unfortunately is unknown here, where he would find rich repasts in all directions; but it is not impossible that all may have died of surfeit. The peregrine falcon [*Falco peregrinus*] at times pays the pigeons a visit, and carries off young chickens.

The Brahminee kite, or Pondicherry eagle, [*Haliastur Indus*] is an occasional visitor; but seems to prefer the small fish in the backwater to the more unsavoury viands on land. He may be seen hovering over shoals of little fish, now and then darting down and re-ascending, with one or more prey in his talons, or else sitting on the top of a fishing stake, either watching for fresh food or digesting that already swallowed. But the common kite [*Milvus govinda*] appears to do his duty as a scavenger, as far as possible.

Amongst the owls [*Strigidæ*] one or two small species are known. The pretty green Indian bee-eater [*Merops viridis*] comes at times in large flocks, but invariably absents himself during the monsoon.

The common swallow [*Hirundo panayana*] and two or three other species as yet unprocured, appear for a season. The goatsucker [*Caprimulgus Asiaticus*] is often perceived at dusk, generally in the centre of a garden path, or noiselessly flitting up from a low shrub.

Of the kingfishers three varieties are found. The small kingfisher [*Alcedo Bengaliensis*], the large black and white one [*Ceryle rudis*], which watches for its prey hovering over the water, and, lastly, the large red billed variety, with a blue back, white throat and chest, and brown abdomen: this species I caught in a hole in the old rampart, where it had excavated its nest in the sand, and deposited three white eggs.

The kingcrow [*Dicrurus macrocercus*], the black-naped oriole [*Oriolus Indicus?*], and much less frequently the Indian golden oriole [*O. kundoo*], the Indian robin [*Thamnobia fulicata*], the grey wagtail [*Motacilla boarula*], are all found in Cochin.

The black crow [*Corvus culminatus*] is rather more common than the grey headed crow [*C. splendens*], but both are great nuisances, excepting during the monsoon time, when frogs abound on which they then appear entirely to subsist. The Rufous tree crow [*Dendrocitta rufa*] is an occasional visitor, as is also the Roller or blue jay [*Coracias Indica*].

The common green parrakeet, and also the rose ringed one [*Palæornis torquatus*]; the Indian Barbet, or coppersmith [*Xantholæma Indica*]; the royal Indian woodpecker [*Chrysocolaptes sultaneus*]; the crow pheasant, or chestnut cuckoo [*Centropus rufipennis*]; the Coël or Eastern black cuckoo [*Eudynamys Orientalis*]; the Hoopoe, [*Upupa nigripennis*]; the honey bird, [*Leptocoma zeyronica*]; and of the sun birds, the *Arachnechthra lotenia* and *A. Asiatica*, have all come under my notice.

Amongst the *Rasores* there are large numbers of domestic poultry, especially turkeys [*Meleagris gallopavo*] and the common fowl [*Gallus domesticus*], in which a large trade is carried on with various inland stations, and they are even occasionally shipped to Calicut or Cannanore. The Jews are generally employed for the purpose of buying

poultry, which they collect in the neighbouring villages, and supply by contract in Cochin. Fowls average from Rs. 2-8 to Rs. 3-8 a dozen, and turkeys from Rs. 15 to Rs. 18 a dozen. But in addition to the poultry already mentioned, the noisy guinea fowl, [*Numida meleagris*] and the still more disagreeable pea fowl, [*Pavo cristatus*] are kept domesticated. Pigeons [*Columba domestica*] do not thrive so well as fowls, owing to the numerous crows.

Amongst the Waders, [*Grallatores*] there are two species of rails, [*Rallidæ*] one of snipes, [*Scolapacidæ*] seven of sandpipers, [*Tringinæ,*] six of herons, [*Ardeidæ*] including the spoonbills, [*Plataleinæ*] and bitterns, two of storks, [*Ciconinæ*] and one of plovers, [*Charadinæ.*]

Amongst the swimming birds [*Natatores*] there are one species of grebe, [*Podicipinæ*] two of gulls, [*Larinæ*] two of terns, [*Sterninæ*] whilst of the large family of ducks [*Anatidæ*], the common Indian teal comes in thousands in the beginning of November, and lasts until March, giving much employment to sportsmen : so common are they, that the market price is merely one anna eight pie a pair. Tame geese and ducks [*Anser,* and *Anas domestica*] thrive well.

Reptilia.—Amongst the reptiles there is one species of *Chelonia,* or fresh water tortoise.

Of the *Saurians,* the ferocious gavial, [*Gavialis gangetica*] inhabits the backwater and neighbouring rivers, swamps, and tanks : at Paroor, about ten miles from Cochin, they appear most numerous. In 1860 a fisherman was brought to the Dispensary, who in the early morning, whilst attending to his nets, was seized by one of these gigantic saurians, whose teeth tore open his chest, the whole length of his abdomen, as well as wounding his cheek and lower extremities : some persons in the neighbourhood hearing his cries rescued him from the reptile's jaws. In a second case, a few days later, another gavial seized a child, and bit through her wrist joint ; she was more fortunate than the fisherman, as she only lost the forearm.

The varieties of the *Lizard* tribe are numerous, but do not call for much notice. Amongst the Agamides, the flying dragon [*Draco volans*] is by no means uncommon in the neighbouring jungles.

Of the serpents [*Ophidiæ*] there are but few examples, and most of them are not venemous ; but amongst the *Elapidæ,* the poisonous Cobra di Capello, [*Naia Tripudians*] has

domesticated itself in the old rampart. The sea snakes [*Hydrophidæ*] have several representatives in the sea, and in the mouth of the backwater.

Amongst the *Batrachians* there are several species of frogs. The large bull frog appears in thousands at the commencement of the monsoon, infesting every piece of water or marshy spot of ground, and affording excellent food for the numerous crows, kites, and other birds. The well frog is curried and eaten by the natives, but persons who wish for good water, usually keep one of these inoffensive reptiles in each well.

Fishes.—Were all the various tribes and species of fish to be enumerated, which exist in the fresh water, salt backwater, and sea, around Cochin, the series would be found to be enormous; I must consequently merely mention some of the most interesting, useful, or dreaded by man.

Some large *Chætodons* are found, the natives eat them, but their flesh is coarse; and it appears doubtful whether they are very cleanly in their diet.

The lancet fish tribe number several species, of the mullets, [*Mugilidæ*] a grey, and also a white species, are deemed excellent for the table.

The herring family [*Clupeidæ*] have perhaps the most useful fish in Cochin, viz., the sardine, which besides being eaten, is employed for obtaining oil to export to Europe: not that the manufacturers are by any means particular, for the butter fish or any other small variety which may be caught, is considered a sardine for the occasion, and even should any larger fish remain unsold, they usually find their way into the general boiling pot.

Of the sharks [*Selachii*] several varieties exist in the sea, but it is seldom that any, excepting very young ones, venture into the river. The white shark [*Carcharias vulgaris*], the blue shark [*C. glaucus*], and the hammer-headed shark (*Zygœna Indica*) are the common varieties; their livers are preferred for the manufacture of the best fish liver oil, but those of the saw fish [*Pristis*] and some species of the skate, and ray families, are also employed.

MOLLUSCA.

This division of the animal kingdom furnishes as many specimens as the others, but the Conchologist will not find it worthy of much attention; there being very few shells, except the commonest bivalves, which are extensively burnt for the purpose of making chunam.

Amongst the *Acephales*, the oyster [*Ostrea*] appears to attract as much attention as any, being much eaten, and their shells burnt for lime. Small pearls are frequently found in them. They are mostly taken by divers in the backwater.

ARTICULATA.

Coleopteræ.—In this large division of the insect creation, the South of India is extremely prolific. In my various tours of duty, I have collected nearly two hundred species.

Amongst the *Pentamerœ*, the tribe of dung beetles [*Scarabeus*] is very numerous, and some, especially a blue variety, are handsome.

Amongst the *Hydradephagœ*, several species of water beetles [*Dyticus*] and whirligigs [*Gyrini*] attract immediate attention from their close resemblance to their European relatives.

Amongst the *Tetramerœ*, several tribes are most beautiful and interesting. Of the *Rhynchophorœ*, often called elephant beetles from their prolonged snout, I have six varieties, one being of a deep purple colour. The *Longicorniæ* tribe have a vast number of representatives. Amongst the helmet, or tortoise beetles [*Cassididæ*] some most lovely varieties exist here, of which the four following are the most frequent: one with a reddish golden lustre, another of a light green and gold, a third smaller, of much the same colours, though differently marked and shaded, and lastly, a larger one, of a brownish hue.

Amongst the *Trimerœ*, the lady birds [*Coccinellœ*] cannot easily be mistaken, either by their appearance or smell.

Hymenopterœ.—In the *Aculeate* division, specimens of all the four families may be found in Cochin. Amongst the flower loving tribe, [*Anthophilœ*] bees, which give excellent honey, are found in the neighbouring jungles, and the carpenter bee [*Xylocopa*] is sometimes destructive. Servants complain very much of the solitary wasps of the tribe *Diploptera*, which make their nests of mud, attached to the doors or other parts of rooms; whilst another species makes its nest of a paper-like material, attached to a pendulous stem in any out-of-the-way corner. The burrowing *Hymenopterœ* [*Fossorriæ*] also are found, but the ants [*Heterogynœ*] are some of the pests of the place. A small species has a most irritating bite, whilst both the

large and small black ants are very numerous; they are all in some respects useful, as they convey away dead insects and devour defunct animals, which might otherwise become very offensive, but housekeepers complain of their depredations, especially amongst the bread and sugar.

In the *Terebrantiate* division, the insects are also very numerous.

Lepidoptera are not so common here as in the neighbouring country, still many and beautiful varieties are found. As the mulberry thrives well in this locality, perhaps the cultivation of the silkworm might succeed.

Diptera.—Amongst these insects, the mosquitoe is the most venemous and best known: it is curious to observe how rare it is in the adjoining country, in comparison with its prevalence in Cochin. The old drains, old houses and indoor privies, already described, no doubt assist, if they are not mainly instrumental in their production.

Aphaniptera.—Fleas are very numerous.

Neuroptera.—The ant lion [*Myrmeleontidæ*] is comparatively rare. The dragon flies [*Libellulidæ*] are a very numerous family. White ants [*Termes fatalis*] commit great havoc.

Orthoptera.—This order of insects, which contains some species most elegant, others equally curious, and again some extremely disgusting, is largely represented. Amongst the cursorial division, is one species of ear wig, [*Forficulina*] the disgusting giant cockroach, [*Blatta Indica*] born in the privies, infests every old house in the place. The curious mantis, [*Mantinæ*] has several species, and the delicate walking leaves [*Phylliidæ*], and curious walking sticks [*Phasminæ*] are common.

Amongst the Saltatorial Orthopteræ is the mole cricket [*Gryllotalpa*] whose appearance is as frightful as can well be imagined, whilst the locusts [*Locustinæ*] and grasshoppers [*Grillinæ*] are very common.

Rhynchota.—Amongst the first division of the Heteropteræ, of the group of bugs, I have obtained six species of the family of *Scutatæ*, one of which, a small one, is most elegantly shaded, in gold, green, yellow, and black; but their disgusting smell detracts from their beauty. The bed bug is very rare, popularly said to have been long since eaten up by the cockroaches.

Myriapoda.—Amongst this large division of the Articulata, the centipede merely calls for notice, its bite does not appear to be venemous.

Arachniadæ.—The three families of spiders are all represented, whilst the scorpion is sometimes found, and the scorpion spider [*Thelyphonidæ*] has several species.

Crustacea.—The crabs [*Brachyuræ*] are a most numerous family, from some of the largest down to the most minute species, the whole of the banks of the backwater and sea shore, at times appear quite alive with them. Amongst the *Macruoa*, the prawns [*Crangonidæ*) are plentiful beyond description.

Annelidæ.—The common leech is found in all marshy places, and the small Ceylon leech is also a pest in the jungles. The natives have an idea that treading on an earth worm during the rains will produce a sore on the foot.

Radiata.—The *Medusæ* must not be unmentioned, as they are extremely common, both in the sea and in the backwater. Hundreds may be seen slowly swimming by the aid of their tentacles against the current, or cast up on the sea shore.

Having thus, most superficially, run through some of the more common animal productions of this prolific coast, the vegetable world requires a few casual remarks. From the excessive moisture of the climate, vegetation is abundant.

Botany.—The botany of Cochin is very varied. The tree which first strikes attention, is the Cocoanut, [*Cocoa nucifera*]: there is probably no tree in existence which is so useful in all its parts: the oil from the nut, the coir, and other commercial products obtained from this tree, will be presently alluded to. The next most celebrated and highly useful tree is the Teak [*Tectona grandis*], so justly esteemed for ship building. All of the following are found, but not plentifully; the Peepul [*Ficus religiosa*]; Tamarind [*Tamarindus Indica*]; the Bread Fruit tree [*Artocarpus incisa*]; Bilimbi [*Averrhoa bilimbi*]; Indian Almond [*Terminalia catappa*]; Cotton Plant tree [*Salmalia Malabarica*]; Cork tree [*Bignonia suberosa*]; Soap Nut tree [*Sapindus emarginatus*]; Neem [*Azadirachta Indica*]; Persian Lilac [*Melia azedarach*]; Pomegranate] [*Punica granatum*]; Jack [*Artocarpus integrifolius*]; Monkey Bread Fruit tree [*Adansonia digitata*]; Red and White Guavas [*Psidum pomiferum*, and *P. pyriferum*]; Limes [*Citrus*

bergamia]; Citron [*Citrus medica*]; Shaddock, or Pumplemose [*Citrus decumana*]; *Bauhinia variegata; Erythrina Indica; Hydrocotyle Asiatica; Cocculus Indicus;* two trees apparently from Ceylon, the Lobi Lobi, and the Marson.

The following are very common; the Mangoe [*Mangifera Indica*]; Portia [*Thespesia populnea*]; Horse Raddish [*Moringa pterygosperma*]; Plantain [*Musa paradisiaca*]; Nutmeg [*Pyrrhosia Horsfieldii*]; Cashew Nut [*Anacardium occidentale*]; Papaw [*Carica papaya*]; the Exile [*Thevetia nereifolia*]; *Allamanda Cathartica; Pisonia morindifolia; Poinsettia pulcherrima;* Chiretta [*Exacum tetragonum*]; French Croton [*Croton variegatum*]; *Justicia picta;* Castor Oil [*Ricinus communis*]; Thorn Apple [*Datura alba* and *D. fastuosa*]; Mudar [*Calotropus gigantea*]; Shumach [*Cæsalpinia coriaria*]; Casuarina [*Casuarina muricata*]; Hedge Aloe [*Aloe vulgaris*]; Shoe Flower [*Hibiscus rosa sinensis*]; Screw Pine [*Pandamus odoratissimus*]; *Cerbera odallum; Morinda citrifolia;* and the Bamboo [*Bambusa arundinacea*].

The vegetables and fruits, not already mentioned, are as follows; the Aghaty Kai [*Coronilla grandiflora*]; Red Pumpkin [*Cucurbita hispida*] is very common, whilst the white variety, from its reputed strengthening qualities, is a dish at nearly every meal. Brinzal, or Egg Plant, [*Solanum melongena*]; Bandaky [*Hibiscus esculentus*]; Cucumber [*Cucumis sativus*]; Onion [*Allium cepa*]; Pineapple [*Ananas sativus*]; Melon [*Cucumis melo*]; Water Melon [*Cucurbita citrullus*]; several species of Yams [*Dioscorea alata, D. bulbifera, D. pentaphylla,* and *D. triphylla*]; Sweet Potatoe [*Batatas edulis*]; Arrowroot [*Curcuma angustifolia*]; Pepper [*Piper nigrum*]; Betel [*Chavica betle*]; and many other common sorts which are found all over India.

Trade.—Having thus completed a brief review of Cochin as it is, with the inhabitants as they at present are, and the productions, its trade forms the next subject of enquiry.

Cochin, from its natural harbour, has enjoyed advantages possessed by no other seaport town on the Western coast of India; and if more had been done to assist its natural capabilities, it would probably have been a far more important place than it now is. Its importance is due to its trade, the locality in which it is situated being one of the richest parts of India in natural productions.

Natives and East Indians are mostly employed as carpenters, coopers, tailors, or fishermen. Ship building, owing to the increased price of labour and augmented value

of timber, has much diminished in extent during the last few years.

A large trade is carried on with Ceylon in dried fish, and the curiously narrow Ceylon fishing boats yearly arrive to try their luck in the Cochin backwater. The fish are dried in the sun and packed in bundles containing 1,500, which cost from Rs. 3-12 to Rs. 4-12 each. The process of drying is unsavoury, but probably not unhealthy; the fish is cut open, and its entrails removed, [these are generally buried at the roots of cocoanut trees for manure,] the incision is then carried half through the anterior surface of the back bone, and the fish having been thus opened like a book, has some salt thrown on to, and well rubbed into, it; during the whole of that day it remains in the sun, the following morning it is washed, and subsequently continues for three or four days exposed to the sun's rays.

The trade in fish oil is by no means inconsiderable: a good regulation of the Collector's exists, that this species of oil must neither be manufactured in the town, nor pumped from cask to cask, as the odour is thought to cause sickness, and the natives believe it sometimes originates cholera.

Commercial fish oil is manufactured in the following manner. The fish are put into a large boiler of water, around which a fire is lighted, as the water boils the oil rises to the surface, and is skimmed of. Or else the fish are allowed to putrefy at one end of a boat, which has sieve-like partitions; over the putrefying mass hot water is poured, and the water and oil pass through the partition, when the oil is skimmed off. The odour of fish oil is too well known to need any further notice.

Fish, as already mentioned, are numerous; some are caught in the sea, others in the backwater, either by nets, cages, lines, spearing, or shooting, by the assistance of the tide, or torch light.

Netting in the deep sea is a most profitable occupation in smooth weather, and fishing with a hook and line is usually productive of good returns.

In the backwater the plans pursued are as numerous as they are interesting. Cast nets are often employed in shallow water, but stake nets are most remunerative. The Rajah of Cochin permits certain parties to fix stakes at about 10 feet apart, across nearly a mile of backwater, at the flood

tide, nets are attached, consequently when the ebb sets in, fish attempting to regain the sea become entangled.

In British Cochin, a Chinese mode of fishing is also employed: for 40 Rupees, a native is allowed to purchase in perpetuity the right of fishing opposite about 20 feet of shore; here he fixes up his net, which is supported by four bamboos, one at either corner, and let down like a bucket into the water, after a few minutes it is pulled up again, prawns and sardines are usually caught in this manner; the only bait is a piece of cocoanut leaf.

Bamboo labyrinths are also used, fish obtain an entrance at high tide, and are unable to find an exit at low tide.

In bait fishing, one man paddles about in a little boat, and catches innumerable small fish; should he hook a larger one than he is able to manage, the nearest boat comes up, and if they obtain the prize, the man who hooked it has two-thirds, the assistant one-third.

Diving for oysters in water about eight feet deep, appears to be very remunerative, as does also spearing by torch light; shooting fish is done with a cross bow.

The timber trade mostly consists in teak, angilly, benteak and white cedar, but many other valuable woods, as black wood, sandal, ebony, red cedar, &c., exist in the jungles.

The other most common productions of the Cochin market are bees wax, cocoanut, castor, fish, poonaca, and gingilly oils; coir, rope, fibre, and junk; copprah, pepper, ginger, arrowroot, nux vomica, aloe fibre, cardamoms, Cocculus Indicus, coffee, aloes, and kino; gums, mace, and nutmegs; hides, and horns.

(To be continued.)

Art. VI.—*On the treatment of Uræmia in Cholera, by the application of Leeches to the region of the Kidneys.* By James Ratton, Surgeon 36th Regiment N. I., Kurnool.

It is a truism to say that cholera is a disease that has baffled, and continues to baffle, the treatment of the most skilful. That remedies which cure in some instances, are found of no avail in others, apparently similarly attacked, at the same moment, under the same circumstances, and not differing materially in constitution. That the usual mode

of treating disease, based upon a knowledge of its pathology, has afforded in its case no guarantee for a more favorable result. That it has thus become a common ground of practice to the pretender, and unprofessional, each equally assuming to himself the ability to treat or to proffer assistance or advice, as is daily evidenced by the public journals.

In fact we have yet to learn the treatment of this disease, and must be content to gather from the bed side the principles which are to guide us; in other words practical experience, even though it should come to us under a form not strictly conformable to pathological teaching, must be our instructor.

Any treatment therefore that holds out a rational prospect of lessening the mortality of this fearful disease, commends itself to our earnest consideration.

The striking results afforded in the four following cases, either as evidenced on the secretion of urine, or on the pulse, or upon both, seem to me deserving of being laid before the eyes of the profession.

Four cases of cholera occurred in the Regimental hospital in the month of September last. Of these, two proved fatal, the other two are those now under record. I will here premise that the cases which proved fatal do not bear upon the point under consideration, viz., the application of leeches as a remedy for uræmia in cholera. No leeches were applied.

The other two cases, of the four here recorded, occurred under my care amongst the employés of the Madras Irrigation and Canal Company's Establishment. I may also mention that the above were the last four cases that have occurred at this station under my treatment.

On these cases I shall now make a few remarks, which I trust may be considered to have a practical tendency, and I hope may eventually lead to an improved treatment of certain symptoms, or stages, connected with this fearful and baffling malady.

I allude more particularly to suppression of urine. This prominent symptom of the disease when persistent, if unrelieved, necessarily leads to uræmia and death. Passing over the general treatment of the cases as offering nothing different from what routine practice has familiarized us with, yet partly corroborative of the treatment by large and repeated doses of Calomel, I will at once draw attention to the fact exemplified in these cases, viz., that the correct

mode of meeting this symptom, or stage of the disease, is to view it as a state of congestion of the kidneys, and to have recourse to local depletion. In other words, the liberal application of leeches to the region of the kidneys.

I may assert that in each of these cases, the result was the restoration of the suspended urinal secretion. Also the restoration of the pulse, in each case in which previous to the application of the leeches, the patient had been pulseless. The pulse usually re-appearing within a few hours after the application of the leeches.

This great and two-fold benefit of local depletion, is clearly instanced in the case of Recruit boy Mahomed Ruzza, who had previously lain pulseless for 48 hours, with cold cadaveric expression of face, and sunken eyes—a fatal result seeming imminent.

The same is equally observed in the case of Private Jaffer Hoossain, as respects the urinal secretion, though not in so striking a degree. Up to 38 hours from the time of his admission the secretion continued suspended, 16 leeches were then applied, and within 24 hours after their application, he had urinated freely. His pulse from the commencement was good, and continued so throughout.

In the first named case it will be observed that some amelioration commenced to take place after the first application of leeches, shown in the patient having passed a little urine within the following six hours; and this secretion was completely re-established 18 hours after the second and larger application of leeches. We see as a result of the first application that the urine continued to be secreted and passed in small quantities in the bed clothes; the result of the second being, the return of the secretion to its natural quantity, 35 hours from the first application of leeches.

The effect on the pulse is also remarkable. He was pulseless at 4 P. M. of the 14th September, the day of admission. The first application of leeches (14) took place at 1 P. M. of the 15th, the pulse being still imperceptible. The second application (16 leeches) took place at 6 A. M. of the 16th. At noon, or six hours after their application, the pulse was returning and just perceptible; and at 2 P. M., or eight hours after the second application of leeches, the pulse was 110 and clearly perceptible. Each succeeding report shewed it to increase in strength, and the lad may be said to date his recovery from that time. From the 17th the treatment

was simply nutritive, consisting of arrowroot and brandy, and on the 19th he was convalescent.

I will now detail the cases before offering any further remarks.

Cholera Epidemica—No. 1.

Recruit Boy Mahomed Ruzza, Æt. 14, No. 84.

14*th September* 1860.—Was brought to hospital at 8 A. M. complaining of having been purged and vomited; skin cold; pulse feeble; has not made urine for some hours.

℞. Calomel ℈ i.
Tinct. Opii. ♏ xl. immediately.

A mustard poultice to the pit of the stomach.

Hot sand bags to the body, feet, and legs.

12 A. M.—Has purged four times, and vomited three times; pulse very feeble.

℞. Chloric Æther ♏ xii.
Liq. Pot. Arsenit. ♏ iv. every half hour.

4 P. M.—He is getting rapidly worse; he is now quite pulseless at the wrist; skin quite cold, and covered with cold perspiration; he vomited twice and purged twice since one o'clock.

℞. Chloric Æther draught every half hour; and
Calomel grs. iv. every hour.

Apply a mustard poultice to the pit of the stomach.

5½ P. M.—Is much the same; purged once since last report.

Cont.

℞. Calomel, grs. ii. and
Chloric Æther ♏ xii. every ¼ hour.

11 P. M.—No change since last report; purged twice, and vomited once.

Continue the Calomel and Chloric Æther.

15*th*, 8 A. M.—Purged twice since last report; in other respects continues the same; has not passed urine.

Continue Calomel grs. iii. every ½ hour with the Chloric Æther draught, till 4 doses are taken.

Brandy and arrowroot congee.

1 P. M.—Feels cold; eyes sunken; but body warm; purged once since last seen; has not passed urine.

℞. Continue the draught, only every hour.
14 leeches to the region of the kidneys.

6 P. M.—Says he has passed a little urine.

He is still passing scanty stools; skin of the face still continues cold; pulse imperceptible at the wrist.

Continue Calomel grs. iii. with the draught, every hour.

10 P. M.—Two stools since last report; says he passed a little urine; pulse still imperceptible at the wrist.

Continue the Calomel and draught, every hour.

16*th*, 2 A. M.—One stool since last report; says he feels a little drowsy. Continue.

6 A. M.—Seen; purging still continues, but the warmth of the body is increasing; pulse not perceptible at the wrist; has not passed urine.

Continue the Calomel and draught, every hour.
Brandy and congee every two hours.
16 leeches to the region of the kidneys.

10 A. M.—Still purging; stools very scanty, darkish in colour; he passed a round worm in the last stool; says he passed a little urine.

Continue the Calomel and draught, every hour.
Pt.

12 A. M.—Pulse returning; skin becoming warmer. Cont. Med.

2 P. M.—Pulse 110, clearly perceptible.

Cont. Med. and brandy and congee.

¼ to 6 P. M.—Pulse same as before; heat of body natural; is perspiring freely.

Continue Calomel grs. iii., and the draught every hour, till 9 P. M.

9 P. M.—Temperature of skin increased in warmth; pulse improving; had one stool since last report, blackish in colour. Said to have passed urine in his clothes.

Continue the brandy and congee.

17*th*, 6 A. M.—Slept pretty well during the night; had two stools, scanty and bilious; pulse and skin improving in character.

Continue the congee and brandy.

12 Noon.—Made water very freely; had two motions, scanty, floculent, and bilious; pulse 100, strong, character good.

Continue the congee and brandy.

6 P. M.—Has made water freely again; had one scanty bilious stool; pulse natural; and doing well.

Continue the congee.

18*th*, 6 A. M.—Had two fluid bilious stools; passed urine freely; pulse 100, rather full and jerking.

Ol. Ricini. ʒ ii.
Aquæ. Menthæ ℥ ss. s. s.

Vespere.—5 P. M.—Pulse full and excited as in the morning; skin cooler and natural; tongue clean and moist; had one soft bilious stool.

Continue the arrowroot congee.

19*th*, 7 A. M.—Pulse natural; going on very favourably; no apparent ailment; bowels moved twice, motions natural; made water freely.

Convalescent.
Continue the congee.

Cholera Epidemica—No. 2.

Private Jaffer Hoossain, Æt. 23, B Company, No. 2027.

5th September, 1860, 4½ P. M.—Was brought to hospital complaining of having purged four times, and vomited once; stools watery; skin natural temperature; pulse natural.

℞. Tinct. Opii. ℥ ss.
Spt. Ammon. Aromat ℥ ss.
Mist. Camphoræ ℥ ii. Mt.

Mustard poultices to the pit of the stomach, and to the calves of the legs. Hot sand bags.

5½ P. M.—Pulse 80, pretty strong and regular; tongue clean and moist; purged three times since admission, consisting of clay colored stools; and vomited once.

℞. Calomel grs. ii. every ½ hour.

6½ P. M.—Much the same; was purged twice, and vomited once; stools the same.

To take a Paterson's pill every ½ hour, till 6 are taken.

6*th*, 8 A. M.—Has rejected the whole of the pills, although nine were given to him. He looks sunk in the face, and sunken eyes; but his pulse is good, 100, strong and regular; tongue moist and pretty natural; surface of the body natural; was purged seven times, stools the same; and vomited frequently.

℞. Calomel grs. iii. every ½ hour.

Plain arrowroot congee. The Effervescing Ammonia draughts to be taken in case of vomiting, and repeated at discretion.

11 A. M.—He seems a little better just now; is lying quite still; skin natural temperature; pulse good: purged twice, and vomited once, since the morning visit. He has taken 24 grs. of Calomel and retained all but one dose.

5 P. M.—Pulse 96, strong and regular; skin natural temperature; tongue natural; had five stools since 10 A. M. and vomited once; stools the same character.

Continue the Calomel grs. ii. every hour.
Calomel grs. iii.
Pulv. Opii. grs. 1¼ H. S. S.

8½ P. M.—Pulse 96, strong and regular; skin natural temperature; neither purged nor vomited since 5 P. M.

Has not passed water.

7*th*, 7 A. M.—Pulse 88, natural; tongue natural, temperature of the body natural; did not sleep well, neither purged nor vomited; has not passed water.

Leeches viii. over the region of each kidney.

℞. Inf. Cherittæ ℥ iss.
Sodæ Sesquicarb. gr. v.
Spts. Æther. Nit. ♏. xx.
Tinct. Cantharidis ♏. viii.
Mt. 4 times a day.

5 P. M.—Pulse 80, soft, and natural; tongue and skin natural; bowels not opened; not vomited since morning; not passed urine yet.

No medicine.

8th, 8 A. M.—Pulse 80, natural; skin natural; tongue clean and moist; bowels not moved; passed urine freely, natural colour; no appetite.

℞. Ol. Ricini ℥ ii.
Ess—Menthæ gtt. i.
Tinct. Opii. ♏ v.

Diet as before, sago and milk.

12th.—This case continued to improve; nothing but debility since last report. Doing well.

Discharged this day.

In the case of Jaffer Hoossain, I believe had the first application of leeches been larger, or followed within a few hours by a second, that an earlier return of the secretion might have been looked for.

The treatment of this case, with many others, tends to show that Paterson's pills,* however useful in some cases, probably in choleraic diarrhœa, are not to be relied on for a cure of this disease. Likewise that large and repeated doses of Calomel seem to be as efficacious a treatment as any other at present known.

Of the cases that occurred amongst the employés of the Irrigation Company's Establishment, No. 3, one of the cases, a delicate little girl, eleven years old, was on the 28th September 1860, after repeated vomiting and purging, admitted at ½ past 4 P. M., in a state of collapse; pulseless, restless, with much thirst.

The general treatment I will passover, simply saying it consisted chiefly in the first instance of Paterson's pills; shortly changed for calomel, brandy and arrowroot, with other adjuvants. Externally cataplasms and hot sand bags. At 7 P. M. she remained in the same state, had continued to purge and vomit; had not made urine; and appeared a hopeless case.

16 leeches were now applied to the region of the kidneys.

29th, 6 A. M.—The report shows the pulse had returned (108), natural strength.

At noon the same day, the pulse was again becoming very low—and she was very restless. Again 16 leeches were applied as before. Soon after their application the pulse rose, and became stronger.

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* The remedy here alluded to, is based upon the well known formula of Dr. Graves'—a combination of acetate of lead and opium—Mr. Paterson's pills contain, in addition, a small quantity of quinine and camphor.—ED. *M. Q. J.*

30*th*, 5 A. M.—She made urine. From this time she convalesced; and was discharged cured on the 5th October.

The general treatment from the first evening was Calomel grs. iv, Opii. grs. ¼, given as a powder placed on the back part of the tongue, every two hours; sometimes it was retained, at other times rejected.

The other case—No. 4. An European—a powerful man.

September 11*th*, 1860, 12 P. M.—Suddenly seized with vomiting and purging; rice water stools, with cramps in his limbs.

12*th*, 7 A. M.—Seen. Vomiting and purging continue; violent cramps in his stomach, legs, and toes; a sunken look; and cold clammy cheeks, and skin; but pulse 100, and strong.

Calomel 3 ss. with Tinct. Opii. ℥ l. were administered directly, and a large mustard poultice applied over the pit of the stomach, and the same to the feet and calves of the legs.

13*th*.—Purging the same; no return of the vomiting since the morning of the 12th; not made urine.

14*th*.—Purging less; not made urine.

15*th*.—Purging less; not made urine; has a peculiar manner of turning himself away when spoken to; disinclined to speak, rather inclined to sleep; though he has taken no opiate since the first dose on the morning of the 12th.

15*th*, 4 P. M.—No urine passed, nor secreted up to this time. He is much inclined to sleep; always dosing; disinclined to speak or to rouse himself.

18 leeches applied to the region of the kidneys.

16*th*, 4 P. M.—Stools less frequent, greenish, and floculent, continues drowsy, and disinclined to speak; no secretion of urine. 24 leeches applied, same as before.

Three hours after their application, he passed a little urine; the next day more, and after that abundantly.

20*th*.—The stools are quite natural—and he passes urine freely.

Convalescent.

The general treatment was by large doses of Calomel, with adjuvants to meet symptoms.

There were some points of interest in this case, but the chief is that to which attention has been directed.

It is a singular feature in the history of this disease, that whilst it has been made the subject of every variety of treatment, some of a most opposite nature—yet I am not aware that this stage or symptom has been met by that treatment based on general principles, which is recognized as correct when applied to other similarly congested organs. It would seem rather to have been most unaccountably lost

sight of. For these very principles are considered equally applicable to a congested state of the kidneys, as to a congested state of the liver, or of the lungs, viz., depletion, general or local. As regards general depletion, I have nothing now to say. Experience has pronounced it to be inapplicable in cholera. But my place is here to insist upon the decided and striking advantages of local depletion. So remarkably indeed were these shewn in the case of the Recruit boy, Mahomed Ruzza, that it was the surprise and comment of several of the officers of the Regiment, who had visited the poor boy, and seen him lying in a state of collapse, upon what to all seemed his death bed. The conviction forcing itself upon the mind, more especially of one of the party most sensibly interested—that had this treatment been known and pursued during the awful visitation that scourged this station in 1859, one greatly lamented death might under God's providence have been prevented ; the patient dying comatose from uræmia on the 8th day of the disease, after having recovered from its first and more characteristic effects. To such cases, unhappily so many, it holds out the only known hope of recovery, while if had recourse to in time, it promises to relieve this disease from one of its most formidable and trying features.

It will be observed I speak of suppression of urine under the terms symptom, or stage. At the commencement of the disease it is a symptom, at the latter part it becomes a stage. It becomes then almost a separate and distinct disease in itself. The characteristic choleraic symptoms having subsided, the disease is merged into this stage, of blood poison. Restore the secretion of urine, and (if not already too late) we probably restore a fellow creature to the world.

I will now, in conclusion, subjoin by way of corollary the following case, in which the natural inference is, that had the treatment above advocated been resorted to, the result would have been different. Unfortunately many similar cases will readily present themselves to the mind of every practitioner. To add details of such, would therefore be a waste of time.

Cholera Epidemica.

Chowry Mootoo, Æt. 40.

4th August 1859.—Admitted at noon ; complaining that since 12 o'clock yesterday, he has been purged and vomited frequently. No pulse ; skin cold ; voice very low ; eyes sunk ; passed no urine. Vomited directly after coming to hospital.

A Paterson's pill directly. Also a small quantity of arrack and water. To be followed every quarter of an hour by the following draught.

℞. Æther Sulph. ʒ ss.
Mist. : Camph· ℥ iss. Mt.

1 P. M.—Purged once, stool watery; and vomited (water-like) a little while after the 4th dose of Ether. Skin cold; no pulse; passed no urine, complains of pain in the loins. Is very restless, throwing the clothes off him.

Pt. c̄ Remedia.

2 P. M.—Was purged twice, and vomited twice. Stools watery; also what is ejected from the stomach. No pulse; skin cold.

Calomel grs. x. directly.
Continue the Ether draughts every ¼ hour.

Sinapisms to the pit of the stomach, and calves of the legs. Hot sand bags to the extremities and body. Arrowroot congee, with a little arrack, a few spoonsful every ½ hour.

5 P. M.—Continues much the same. No pulse.

℞. Acid. Acet. ʒ ii.
Chloroform ʒ ii. Mt.

To be applied as a vesicatory to the pit of the stomach, for ½ an hour, covered with wax cloth and a bandage. Strong Acetic Acid to be applied to the soles of the feet.

Continue the Æther draughts every ½ hour up to 4 doses. Continue also the arrowroot and arrack.

5th, 7 A. M.—Slept a little at intervals; bowels moved twice last night, and once this morning; stools green, fluid, bilious. No pulse; skin cold; perhaps not quite so cold as before. Tongue clean, and moist; passed no urine. Remains quiet, no longer tosses about. He now likes to be covered up, and draws the cumblie over himself, whereas yesterday he could not bear the heat he experienced, and was restless, throwing the coverings off him.

Repeat Calomel grs. x.

Continue the arrowroot and arrack. Hot sand bags.

1 P. M.—Seems a little better than this morning. No vomiting; passed one green bilious stool. No urine; pulse small, and thready; skin same as this morning.

6 P. M.—Continues in the same state; no vomiting or purging; no urine; pulse still very feeble and thready.

7 P. M.—Continues the same. Some pain in the loins.

℞. Acid. Acet.
Chloroform āā ʒ i.
To be applied as a blister to the loins.
Spt. Æther Nit. ʒ i.
Aquæ.
Arrack āā ℥ i. Mt.

Half to be taken now, and repeated in an hour.

6*th*, 6½ A. M.—Sunk gradually during the night, and died, as it were comatose, at 5 A. M.

The treatment of cholera is a problem yet to be worked out. But reasoning from analogy, as we find such a marked benefit following the application of leeches over the seat of organs only occasionally found to be congested, I venture to suggest that in the many cases that come under our notice where the symptoms of congestion (as confirmed by pathology) are very marked, whether of the lungs or of the liver, the same treatment may be hoped to be attended with favorable results.

I feel the less diffidence in recommending this treatment upon simply analogical grounds, because the cases here alluded to are, beyond our present aid, and we merely look on to see the fast approaching and surely fatal result. Take such a case for instance, and observe the man pulseless, throwing himself about, tearing off the bed clothes, removing every cloth from about him, asking for air, for breath, and nobody will doubt that there is a congested state of the lungs, probably of the liver, and oppression of the heart's action. Bleeding has been discarded. It has been found unavailing, useless, blood will not flow. Well, I merely suggest to apply leeches to the chest, say sixty leeches. Let them suck away the blood, while they induce a revulsive action to the surface. It is certain, that if they do no good, the man is not in a position to be injured by them, he is beyond that.

The mind will from this carry us pretty naturally to consider the free application of leeches over the seat of the liver, in the early stage of the disease. In the present uncertain state of the treatment of cholera, there is nothing actually to discourage this view. On the contrary where we see such effects not only upon the secretion of the organ itself, but also upon the pulse, when applied over organs so far removed from the direct course of the circulation, how much more may we expect a favorable action upon the pulse, when they are applied over organs so intimately connected with the circulation as either the lungs or the liver.

It would not be consistent to close these remarks without referring more clearly to what is known of the pathology of this disease. Writers on the subject differ materially in what they have observed and recorded. To quote two well

known authorities, Mr. Annesley, and later, Dr. Morehead. The former (Sketches of Diseases of India) says :—

"The capillary vessels under the peritoneal and mucous coats are filled with dark coloured blood, shewing decided general congestion, with ecchymosis in detached points. Similar evidences of congestion existed in the small intestines, and also in the large. The liver was generally congested and gorged with viscid black blood, and was flabby and friable. The state of the spleen was nearly similar. The gall bladder distended with dark bile, unless temporary reaction had taken place, when it was generally empty. The kidneys, nearly natural in colour and consistence, shewed no evidence of any derangement which could account for the suppression of their secretion. The urinary bladder generally empty and contracted.

The large veins and the right side of the heart were filled with dark thick blood. The substance of the heart appeared softer than usual. The lungs were greatly congested. The cerebral sinuses were also loaded with dark blood ; and the brain, though sometimes soft, shewed no decided evidence of increased action."

While Dr. Morehead (Clinical Researches on Disease in India, Vol. 1, p. 383) says :—

"That the general and capillary circulation of the blood, and all the actions of the system dependent on them, are more or less arrested in cholera, is the first clinical fact on which I fix my attention.

The lungs are generally well collapsed ; the anterior surface is pale, with sometimes an inflated or emphysematous state of their edges. There is, for the most part, a reddened colour of the lungs at their posterior aspect, with moderate congestion. The heart is sometimes flaccid, at others not so. The left ventricle is almost invariably empty ; but the right one is more or less filled with blood, dark colored, generally quite fluid, sometimes with coexisting fibrinous coagula.

There is, for the most part, little to attract attention in the appearance of the liver. Sometimes when incised it bleeds more freely than usual.

The kidneys are sometimes healthy in external appearance, sometimes they are congested.

Such is a summary of the morbid appearances in the collapsed stage of cholera, drawn from my own observation, and I am not aware that any important practical addition can be made to it from the writings of the latest observers, with exception of the minuter accounts of the condition of the kidneys. I allude to the epithelial debris found in the uriniferous tubes and pelves of the kidney as explanatory of the albuminous state of the urine on its re-appearance after reaction."

It will be observed then, that the pathology of this disease does not show a generally congested state of the kidneys.

In truth it must be admitted that our knowledge of the pathology of the disease has thrown very little light upon its treatment. That here offered for consideration promises a prospect of relief not to be obtained by any at present known means. At least it commends itself to future experience to decide upon its merits.

ART. VII.—*Fifth Annual Report on the Causes of Death in Madras, during the year* 1859. By W. R. CORNISH, Esq., Secretary, Principal Inspector General, Medical Department.

[*Communicated by the Principal Inspector General, Medical Department.*]

Introductory Note.—The accompanying observations, with tables classifying the causes of death, have been submitted to Government, by the head of the Medical Department, and in all probability will appear in a separate form, as a published selection from the records of Government.

Dr. Pearse, late Principal Inspector General, thought the report of sufficient interest, as a contribution to sanitary science, to occupy a place in a strictly professional publication, and in deference to that gentleman's views, it now appears in this journal. From want of space the tables on which the report is based, are omitted.

The Presidency towns of Madras and Bombay, for some years past, have had their annual mortuary tables published for general information. Bombay in this matter has taken the lead, and to Dr. Leith, the profession and the public are much indebted for the accurately compiled tables of mortality in the western Presidency Capital. Calcutta, as yet, has not furnished any details regarding the mortality of her population.

In the registration of the causes of death, it is important that in all countries an uniform system should be adopted. That of the Registrar General in England has been followed in the Madras tables for 1859, and whenever that functionary changes his classification for the more complete nosology adopted by the Statistical Congress in Vienna in 1856, and now introduced into our army official returns, a similar arrangement will be effected in the Madras mortuary reports.

A comprehensive system of registration for all India, must sooner or later be established. The subject is too important in regard to the relations of the governing classes to the governed, to be much longer neglected. The difference in the death rates of Bombay and Madras, under the head "Fevers" for instance, is sufficiently striking, to claim the attention of the legislature to the importance of registration, as a means of showing the amount of preventable disease and premature mortality, which obtains throughout the length and breadth of this vast country.

Let us briefly consider the national losses from a disease, comparatively new to us, but which is, unfortunately, now domesticated in every dirty town and village in India. In the year 1817 cholera was first observed in this country. It is a more generally diffused, and fatal disease now, than on its first outbreak. We may form some little notion of its fatality, by considering the statistics of our Native Army, and its ravages amongst a body of disciplined and healthy men.

The annual average death rate of cholera in the Madras Native Army for

the last twenty years, has been nearly *seven per thousand* of mean strength. It is well known that the followers and families generally suffer more severely than the sepoys themselves, so that the death rate in the Army from this cause may safely be taken as lower than that of the population generally. But assuming the 150 millions of inhabitants of India to suffer only in proportion to the Madras Native Army, *one million and upwards* of the population must fall victims every year to the ravages of this one disease.*

The local differences in the death rates of the circumscribed area of the town of Madras, are sufficiently startling, and clearly tend to the discovery of those causes of disease, which are removable, or which by strict attention to the common principles of sanitation, may be rendered non-existent.

Until some general plan of registration can be introduced by authority, a great amount of valuable statistical information might be obtained by Medical officers interested in the inquiry. The Sudder stations of the various Collectorates, for instance, might be, as a preliminary measure, brought under observation. There need be no difficulty, with the cordial co-operation of the Revenue and Police authorities, in recording the causes of death in such circumscribed localities, or in estimating the population and area. An attempt might also be made to register the births and marriages, but it is doubtful how far it would succeed in the absence of any legislative enactment, rendering such registration compulsory. If each Civil Surgeon would do for his own district what the late lamented Dr. Bedford did for Chittagong, we might soon be in possession of a valuable amount of information, on the vital statistics of the country.

The importance of *local observation* as to the causes of preventable disease can scarcely be overrated. In the Madras Army it is found that troops (European) stationed on the Western Coast, enjoy almost an immunity from cholera. In the Ceded Districts the mortality from the disease is *sixteen times*, and in the Native Army *seven times* heavier, than in a similar strength of troops occupying stations on the Western Coast. We want a satisfactory explanation of these differences, and this can only be obtained by careful local investigation. In the present number of this journal Dr. Mackay has pointed out that the lowest street in the Ootacamund bazaar, has a very large excess of deaths, above those on a higher level. Observations like this admit of practical action being taken in the remedying of sanitary defects, and with the view of directing attention to the very great importance of inquiring into the causes of disease in different localities, this report,—confessedly meagre, and imperfect in its details,—is submitted to the profession.—W. R. C.

The accompanying tables† have been framed in accordance with the plan adopted by the Registrar General in England, in his Annual Reports. They occupy less space, and contain perhaps more valuable information than those heretofore furnished, but the change has entailed considerable labor upon the Office Establishment, and has occasioned some delay in publication.

In consequence of the system of publishing weekly re-

* I have not lost sight of the fact, that the native army of Madras suffers more from cholera than those of Bengal and Bombay. There are good reasons, however, for supposing that the mortality in the former body is a closer approximation to the death rate from cholera in the bulk of the population, than that of the Bengal or Bombay native armies.

† The abstract table, showing the causes of death at different ages in the whole population, is appended. The detailed tables are too long for insertion in this journal.

gisters, according to the Registrar General's classification, in the *Fort Saint George Gazette*, which was instituted in the beginning of 1860, there will be, comparatively, little delay in framing the Annual tables for that and future years, and it is hoped that they will be ready for publication within a few months of the period when they fall due.

The Registrar General has only one set of tables for natives of Britain and Foreigners. In India it is absolutely necessary that the relative rates of mortality in the various races should be shown separately, if the tables (when the population shall have been more accurately determined) are to be of any value. It has therefore been deemed expedient to submit separate returns for the four great classes of* inhabitants, showing the diseases from which deaths occurred at various ages, and the districts in which the various classes of disease prevailed. The general tables at the end, include the deaths in the whole population without distinguishing caste or race. There are but few persons living in Madras who do not come under one of the classes specified. No attempt has been made at minute division of the various Hindoo castes, it being impracticable, at present, to separate them with accuracy.

In former years the deaths amongst Europeans and East Indians were classed together. This arrangement was obviously calculated to afford fallacious data as to the value of life in both classes. In late years it has been a point with some Life Assurance Societies to ascertain how far the principles of Assurance are applicable to a mixed race. It is believed that no reliable data exist on which life tables, suited to the requirements of the East Indian population, could be constructed, and it is understood that very few, if any, of the offices are prepared to insure their lives except for limited periods, at ordinary rates. Hence it appeared desirable to separate the deaths of those of pure European extraction from the mixed race, and in the course of a few years, when a correct census shall have shown the relative proportions of each, and the Mortuary tables have been carefully prepared in the present form, it may not be impracticable to determine the value of life at different ages in the class of Indo-Britons.

The importance of a correct census of the population has already attracted the attention of Government, and efforts

* Europeans, East Indians, Hindoos, Mahommedans.

are now being made by the Municipal authorities to obtain correct data concerning certain classes of the population.—If a general census of the population should be ordered, the form of return lately furnished to the European Army, with one or two slight modifications, to show caste and race, would be well calculated to furnish complete information on all the essential points demanded in an inquiry of this nature.

With these preliminary remarks, chiefly in explanation of the changes in the form of tables, we may proceed to a consideration of the causes influencing public health in Madras, and determining the mortality during the year 1859.

The seasons on the whole were most favorable to cultivation. The N. E. monsoon of 1858 was very plentiful, filling all the tanks and wells with an abundant supply of water. The "mango showers" of April fell in greater abundance than usual, and rain continued to fall in moderate quantities, and at short intervals, throughout the months of May, June, and July. The "hot" season may be said to have had scarcely any existence in 1859. The total rain-fall in the year was 55·144 inches, or 6·101 inches above the average of 51 years. Thunder storms were not unfrequent, but there was an entire absence of those violent cyclones, which sometimes prevail on the Coromandel Coast. Vegetation was unusually luxuriant throughout the year.

Articles of food in the town of Madras generally maintain a high and steady value in comparison with prices at inland stations. There are doubtless many reasons why high prices should exist, and not the least of these is to be found in the increasing wealth of the population generally, in the abundance of labor for all who are able and willing to work, and in the higher rates of wages paid to the skilled and common laborer. The appended table, which has been obtained through the kind assistance of the Commissary General, will show the average prices of the staple articles of food used by the bulk of the population during the year.

With favorable seasons, and sufficiency of food and labor for the poorer classes, it is but natural to expect a diminution of sickness and mortality in the population. That this was actually the case, especially during the last eight months of the year, is very clear from the general testimony of the Medical Officers in charge of public hospitals, and from the weekly registers of deaths furnished by the Municipal Commissioners. In former years, and to some extent during the

year under report, there is reason to suppose that some of the deaths occurring in this town have not been registered. Still there is no doubt that the greater number of them were duly reported to the Police, and that the returns are gradually becoming more and more perfect.

The total deaths reported in 1859, were 10,292. The yearly totals from 1855 are shown in the margin. It will be seen that in the past year the mortality appears higher than in any of the three preceding years. The true explanation probably is to be found in the greater precision of the returns for 1859, as during the last eight months of the year, epidemic diseases were almost entirely absent.

Deaths in	
1855	10,627
1856	8,433
1857	6,968
1858	10,148
1859	10,292

It is sad to think that one-half of the total number of deaths, or to speak with accuracy 5,271 of them, come under the class of "Zymotic diseases." The term "zymotic" has been applied to all those diseases which appear to result from the presence in the system of a virus, or poison diffusing itself throughout the body, and operating after the manner of leaven. It is a question in the present state of our knowledge of the laws regulating the progress of such diseases, whether the term is strictly applicable to all which are now classed as zymotic. The term is, however, sufficiently comprehensive, and is understood practically to include nearly all those diseases which are susceptible of diminution, by strict attention to sanitary laws on the part of congregated masses of human beings. In Great Britain about 20 per cent. of the total deaths are referable to zymotic diseases. In Madras 50 per cent., and in Bombay, judging from the fact that more than half the deaths are returned under the head of "Fevers" alone, a much larger proportion.

Madras is on the whole favorably placed in regard to its natural advantages, and in its comparative freedom from those causes of disease which tell with such fatal effect in the other Presidency towns. With pure sea breezes* blowing steadily for several hours, in most days of the year, to dissipate and remove foul and stagnant air from its crowded

* It has been proved by competent observers that sea air contains more than the average quantity of ozone. On passing over densely crowded cities, it is found to have parted with a portion, or the whole of this valuable constituent. Does not the presence of ozone explain in some measure the wonderfully invigorating effects of the sea breeze in tropical lands?

streets, there should be but little miasmatic sickness, and what there is, should be susceptible of mitigation by the judicious application of the principles of sanitary science. There are no deadly marshes nor jungles near enough to the town to give rise to malaria, as in Bombay and Calcutta. The dead level, on which the town stands, and its low elevation above the sea, are no doubt the most objectionable features in the site of our chief city, a site fixed upon not in reference to its capabilities as a healthful place of residence, but gladly accepted by the early European settlers for the purpose of establishing a factory, and as affording facilities for the prosecution of trade and commerce in a new field of enterprise.

But although Nature has been good and bountiful, Man has been ignorant and incapable of appreciating the advantages of the situation. The pure sea breeze tries in vain to enter the ill-constructed house of native build, and, from the streets running generally parallel to the seaboard, little or no opportunity is allowed of ventilating them, and dispelling the poisonous vapours arising from open gutters and sewers. The water supply in many parts of the town has been polluted at its source from the percolation of sewage matter through the soil. In other districts, old grave yards are so numerous, that the whole soil, and consequently the water supply, is impregnated with corrupt matters, and hence arises a formidable source of disease. It is no wonder then that the class of "Zymotic" diseases should destroy one-half of those who die. It is in the prevention of these diseases, that sanitarians have been so successful in other countries. Is it too much to expect that close attention to the same remedial measures, would be followed by similar results here as elsewhere?

It will be necessary to offer a few remarks upon the diseases which have occasioned the greatest mortality, and especially upon those, which to a greater or lesser extent, may be termed preventable.

Cholera is seldom absent from Madras for many weeks together, although it only occasionally prevails as an epidemic. It has its favorite haunts in badly drained and low lying districts, and in filthy suburbs; in these, isolated cases are of frequent occurrence. An epidemic of cholera was present at the beginning of the year, and prevailed during the months of January, February and March, when it began to decline, and from the end of April until the

close of the year, very few cases occurred. In all 1,082 deaths were registered from this cause, the proportion of males and females being 533 and 549 respectively.

The class of persons who suffered proportionately in the greatest numbers from this epidemic, were undoubtedly *Mahommedans.* We have no accurate statistics of the relative proportions of the various classes in this city, but judging from the mortality tables of the past five years, it may be stated roughly, that the Mahommedans are to the Hindoos and Pariahs as one to six, or six and a half. In the cholera epidemic just referred to, 378 Mahommedans died, and 676 Hindoos, so that instead of being in the proportion just mentioned, which would have been the case had it affected all sections of the population equally, the Mahommedans lost a fraction more than one to *two*, or in other words, the epidemic affected them with three-fold greater severity than it did the other great section of the community.

The explanation of this remarkable difference is probably to be found in the fact, that the personal habits of the Mahommedans as a class are less cleanly than those of Hindoos, that the great Mahommedan quarter of this town is one huge over-grown grave yard, and that the drinking water of the district is, as a rule, contaminated with the organic remains of the dead of past generations. This subject will be noticed at greater length in the report for 1860, in reference to the very severe outbreak of cholera which occurred during that year.

To illustrate the greater liability of Mahommedans to epidemics of cholera, when they prevail in this town, it may be mentioned that during the five years in which registratation has been attended to, the yearly fluctuations in the deaths of this class have ranged from 602 to 1,826, or in other words, the mortality has risen to 300 per cent. in an epidemic year, above what it has been in a healthy season. Amongst the much larger class of Hindoos of all castes, the yearly variation due to epidemics has never exceeded 50 per cent., viz., from 6,037 to 9,023.

The circumstances above alluded to, are now, perhaps for the first time, supported by the evidence of figures. Medical Officers at the Presidency and others, have long since surmised that in cholera epidemics the Mahommedan population suffers out of proportion to its strength. The fact is one of very grave interest to those concerned. It seems to show that a continuance of the present system of intra-

mural burials, and gross inattention to the simplest rules of cleanliness and decency, by one section of the public, not only occasions an unnecessary waste of human life, and endangers the safety of the whole, but actually threatens the very existence of the class which is so neglectful of sanitary laws. For the time must come, sooner or later, under a continuance of such unfavorable conditions, when the Mussulman population will dwindle into insignificance. It is supposed by those who have good opportunities of judging, that their numbers have for some years past been steadily diminishing; not however entirely from the causes adverted to. The dispersion of the followers of the late Nawab has doubtless in some degree affected the population of this class of the community.

The deaths registered under the head of "Fevers," as shown in the Report for 1858, are probably not all due to miasmatic poisoning. Natives are in the habit of describing all kinds of illness as "fever," and as a very large proportion of the deaths are registered in accordance with the descriptions of unprofessional persons, great accuracy cannot be expected in reference to a form of disease which is frequently only a symptom of some more serious malady. Still there is no doubt that fevers of a low adynamic type prevail extensively amongst the lower orders of the population.*

The exciting causes are probably to be found in the low situation of many districts of the town, in the defective drainage, and continued presence of a sewer atmosphere; in the badly constructed houses and streets, which do not admit of ventilation or free perflation, and in the habit, common to natives of all classes, of sleeping on the ground, and in the hot weather, under the eaves of their houses, exposed to the noxious effluvia of open drains. Intermittent and remittent fevers are common in the cold season, or during the N. E. monsoon, amongst all classes, but Hindoos and Mahommedans are the chief sufferers.

The deaths from "Fevers" for the past five years have been as follows:—

1855	1,729
1856	1,510
1857	764
1858	1,896
1859	2,384

* *Typhoid* fever has been frequently observed of late years, in all classes of the community.

It will be evident, therefore, that whatever the causes of fever may be, they have been especially present in the years 1858 and 1859. The year 1857 was remarkable for its low rate of mortality in the class of zymotic diseases. It has been already stated that in Bombay, about *one-half* of the whole mortality is due to "fevers." In Madras, the average proportion is not more than *one-eighth* or *ninth*. The unfavorable locality of the western Presidency town, surrounded as it is by unwholesome marshes, is doubtless the true explanation of the remarkable difference in the fever rates of the two towns. The increase of fever deaths in Madras, however, shows that the causes at work in producing these diseases are to a certain extent removable, and that a high rate of mortality from them may be regarded as arising from inattention to those preventive measures which in other countries have tended so much to diminish their frequency and fatality.

There is a considerable amount of wet cultivation in and around Madras. There is no evidence however to show that it is in any way prejudicial to the health of the people. Doubtless, marshy and badly drained localities are productive of miasma, and many such localities exist; but with regard to wet cultivation, it is certain that in some districts where it is much practised, there is no marked preponderance of fever, whilst a sensible alteration of temperature from a large evaporating surface, is effected.

Small-Pox.—This is one of the diseases in which there is yearly an unnecessary loss of life. The deaths in the past year numbered 475, the yearly average of the four preceding years being 590, so that the loss has been somewhat below the average. It has been shown, in remarking upon the cholera epidemic of this year, that the Mahommedans suffered out of all proportion to the other classes. With regard to small-pox, the various classes of inhabitants have suffered just in proportion to the extent they have availed themselves of vaccination, or neglected that prophylatic. The European community may be said to be well protected, and consequently only 2, out of a total of 122 deaths, were due to small-pox. Both these fatal cases occurred in young children under 10 years of age, and there is nothing to show whether they had been properly vaccinated or not. The lower orders of East Indians are by no means thoroughly protected by vaccination, and 7 deaths out of a total of 224 occurred from small-pox. The Mahommedan population is

less prejudiced against vaccination than the Hindoo, and the small-pox mortality was in that class of the community only 43 out of a total of 1,826 deaths. The religious prejudices of the Hindoos do not lead them to look with favor upon an operation which they deem offensive to the deity supposed to be peculiarly interested in small-pox. As a natural result, the largest proportion of victims is to be found amongst the latter class; 422 Hindoos out of a total of 8,120 died of the disease. The proportion of small-pox to the total of deaths amongst each class is more clearly shown in the following form :—

Europeans,.....1·63 per cent.
East Indians,...3·12 ,,
Mahommedans,.2·35 ,,
Hindoos,.....5·19 ,,

These proportions are very striking; they show most conclusively that the mortality from this disease may be reduced to an insignificant item in the total of deaths, by a full acceptance of Jenner's great discovery, and the practical application of it. That the East Indian community should suffer more than the Mahommedan, is a sad reflection on their neglect of the blessing which Government has placed within their reach, and it is to be hoped that the facts now brought to light, may lead to the more general adoption of vaccination amongst them. Unlike the Hindoos, they have no religious prejudices nor superstitious theories to stand in their way, and their neglect to avail themselves of vaccination can only be ascribed to apathy, or ignorance of the advantages of that very simple operation.

It is not improbable that vaccination has fallen into disrepute with some sections of the community, on account of the liability of the vaccine virus to become deteriorated or inert, if sufficient care has not been adopted in its preservation. With the present staff of vaccinators (whose shortcomings have on previous occasions been brought to the notice of Government) there is little hope of the operation ever becoming popular in this country. In the hands of intelligent and active agents, however, we may hope to witness a gradual improvement, and in process of time, a diminished death-rate.

It is worthy of notice that only two deaths occurred from "*measles.*" This disease is not generally a fatal one in Madras. In 1858, a few deaths occurred from it, but the returns of the three previous years are blank throughout the

columns alloted to this disease. In Bombay, measles is often epidemic, and the cause of death to a considerable number of persons.

Diarrhœa and Dysentery.—The deaths from these diseases may for all practical purposes be considered together. The causes producing them are always in operation. There may be periods of great activity, and comparative quiescence, but in this large, populous, and ill-drained town, they never cease. It has been well observed by Mr. Simon, the Medical Officer of the General Board of Health, that "nothing in medicine is more certain than the general meaning of high diarrhœal death rates." Mr. Simon's explanation of the circumstances alluded to is so clearly and ably put, that no apology is needed for quoting his own words. "The mu-"cous membrane of the intestinal canal is the excreting sur-"face to which nature directs all the accidental putridities "which enter us. Whether they have been breathed, or "drunk, or eaten, or sucked up into the blood from the sur-"faces of foul sores, or directly injected into the blood ves-"sels by the physiological experimenter, there it is that "they settle and act. As wine gets into the head, so these "agents get into the bowels. There, as their universal result "they tend to produce diarrhœa; simple diarrhœa in the "absence of specific infections; specific diarrhœa when the "ferments of cholera and typhoid fever are in operation. "And any such distribution of diarrhœal disease as has just "been noticed, warrants a presumption, indeed so far as I "know, a practical certainty, that *in the districts which "suffer the high diarrhœal death-rates, the population either "breathes or drinks a large amount of putrefying animal "refuse.*"

There is no doubt however that some of the deaths registered under the heads "diarrhœa and dysentery" are due to other causes than putrefactive pollution of the system. Some of the constitutional diseases, as Phthisis, Leprosy, &c., have their terminations in alvine flux, and a class of disorders depending upon a depraved condition of the blood, or a long course of semi-starvation, frequently end in diarrhœa or dysentery. Still the number of deaths from these diseases, viz., 1,313, or about $\frac{1}{8}$th of the total mortality, spread pretty equally over the year, bespeak very plainly the neglect of sanitary laws, and the needless sacrifice of life resulting from such neglect.

CONSTITUTIONAL DISEASES.—These are arranged 1st, as of

"*uncertain* or *variable seat*," and 2nd, as "*tubercular*." The first division includes the class of "*dropsies*" from which 451 persons died, the deaths amongst the females being slightly in excess of those of the males. These are, generally speaking, diseases of advanced life ; they do not vary much from year to year, and they are often the result of organic disease of the heart, liver, or kidneys. The greatest proportion of deaths, both in males and females, occurs between the ages of 45 and 75.

Of tubercular diseases, 266 males and 209 females are reported to have died from *phthisis*. It is popularly supposed that inhabitants of tropical climates enjoy an immunity from this disease, which those of more temperate climates are strangers to. There is no doubt that the conditions favorable to the development of the tubercular diathesis, are to a great extent wanting, and that consumption is a comparatively rare disease in the natives of Southern India, whatever it may be in the other Presidencies. The proportion of deaths occasioned by it, in the various classes are shown below :—

Europeans	3·27.
East Indians	8·93.
Mahommedans	2·78.
Hindoos	4·94.

One cannot but be struck with the large proportion of deaths from phthisis, amongst the East Indian community. The low rate of European mortality is explained by the fact that many soldiers affected with phthisis are invalided and sent to England, and also that the wealthier classes, both Civil and Military, who may be affected with the disease, rarely remain here to die. If it were not so, it is probable that the proportion of deaths from phthisis in Europeans would be much increased. The greater liability of the mixed race to tubercular affections is probably inherited, to a certain extent. In England and Wales, about 50,000 persons die yearly from phthisis, the average total deaths in round numbers being 400,000, so that phthisis causes *one-eighth* of the total mortality. Here in Madras, amongst the East Indian population, *one-twelfth* is the proportion, which is three times as high as the Mahommedan death-rate, and twice as high as the Hindoo from the same disease. The physical conditions under which large numbers of these three sections of the community live, are very similar, as regards

climate, occupation, house accommodation and food, (excluding high caste Hindoos who live on a vegetable diet) and there is no sufficient explanation of the greater tendency of the East Indian community to become affected with tubercular diseases, if we fail to take into account the inherited characteristics of the original mixed race. The European of pure blood, it has been stated on high authority, becomes extinct in India in the 2nd or 3rd generation. If he intermarries with natives of the country, the resulting stock inherits some of his tendencies towards extinction, and in succeeding generations, without fresh admixture of European or Native blood, the race undergoes a process of physical degeneration, in which the liability to tubercular affections is but too frequently marked.

In briefly reviewing the several divisions of the great class of "local" diseases, we come first in order to those affecting the "*nervous system.*" Convulsive diseases are generally registered as "*Epilepsy*" in consequence of the inability of non-professional persons to distinguish between true epilepsy, and convulsive diseases arising from other causes. Under the combined head of "*Epilepsy and Convulsions,*" 605 deaths have been registered, and as 526 of these occurred in children under five years of age, it is but fair to suppose that a large number of them were due to teething, or other sources of irritation to the nervous centres.*

Under the head of "*Organs of Circulation*" are included diseases of the heart and blood vessels. The deaths registered in this class are very few. No doubt, many cases of heart disease are registered in accordance with a frequent and prominent symptom, namely, dropsy.

Diseases of the "*Organs of Respiration*" are not so frequent, nor attended with the same amount of fatality, in this, as in more variable climates. Bronchitis, affecting middle-aged or elderly persons, has been the most fatal of this class of diseases.

Diseases of the "*Digestive Organs*" appear to have been especially fatal to young children. 486 of the deaths regis-

* Dr. Headlam Greenhow has shown that the deaths from convulsive disorders in young children, are very unequally distributed, and that they vary from 302 to 3,886 per 100,000 in different localities. The manufacturing districts in the North Western counties of England, show the highest death-rates, and thus indicate the adverse influences of overcrowding and foul air, in the production of convulsive disorders of childhood.

tered in this class, out of a total of 693, were children under five years of age, and three-fourths of these under one year.*

Diseases of the "*Urinary Organs*" are by no means frequent in the natives of Madras. Europeans and East Indians enjoy too a considerable immunity in this respect. The most common disease in this class is "diabetes," and it appears to affect high caste Hindoos, especially those who live on a purely vegetable diet, in a greater proportion than any other class of inhabitants. Thirty deaths are recorded from it. Twenty-seven males and three females. Twenty-seven of these were Hindoos and three Mahommedans.

Stone in the bladder is a disease rarely met with in Southern India, although exceedingly common in the North West Provinces, Punjaub, Scinde, Goozerat, and Central India. One death from this cause appears in the returns, the patient being an European.

Under the head "*Diseases of the Organs of Generation*" are included deaths in child-birth, or from puerperal causes. The Madras Lying-in-Hospital has doubtless been the means of diminishing this source of mortality of late years. It is an institution much resorted to and very popular with the East Indian and Native community, who freely avail themselves of it, as may be understood when it is stated that nearly 1,000 deliveries are effected there annually, and that many of the cases are of a severe and complicated nature. The institution not only contributes to the diminution of mortality by the number of women actually delivered within its walls, but by educating and fitting for independent practice a large number of midwives, who find a profitable field for their exertions in this large and populous town. Notwithstanding these favorable conditions, 300 women died in child-birth during the year. The numbers and proportion in the various classes were as follows:—

	No.	Per centage of deaths to total female mortality.
Europeans,.....	1	..... 3·03
East Indians,...	6	..... 5·35
Hindoos,.....	234	..... 6·07
Mahommedans,	59	..... 6·66
	300	

* The practice of stuffing young children with rice conjees, and other articles of food unsuited to their digestive powers, is probably a fertile source of mortality in this class of the population.

It seems clear from this table that the causes influencing the mortality from child-birth, press with the greatest severity on the native population. If it were possible to form an estimate of the numbers of the female population at child bearing ages in the several classes, this fact would be brought out with greater distinctness. Setting aside the accidents arising from maltreatment during and after labor, there is no doubt that the insanitary condition of the houses in which native females are confined, the ill-ventilated and darkened apartments assigned to them, influence very unfavorably their recovery after delivery.

Diseases of the Organs of Locomotion.—Under this head the largest number of deaths occurred from *Rheumatism*, but the total is by no means large in proportion to the deaths from all causes.

Diseases of the Integumentary System.—*Leprosy, Carbuncle, Boils,* and *Elephantiasis,* are included in this class. With regard to leprosy, 81 persons are reported to have died of it: 61 males and 20 females. It is a question whether this and the allied disease, elephantiasis, are not on the increase in Madras. One cannot but be struck with the number of "Elephant" or "Cochin" legs, seen in a walk or drive through the more densely populated streets and bazaars. They certainly appear, to the superficial observer, to be more numerous than they were a few years ago.* The worst cases of leprosy find admission into the Hospital instituted for their reception, and, as a rule, do not come before the public eye.

Only one death is recorded as due to elephantiasis. It is most probable that as the disease is characterized by periodical accessions of fever, other deaths actually due to this disease, are included under the head of "Fevers."

DISEASES OF GROWTH, NUTRITION AND DECAY.—*Premature birth and debility.*—458 children are reported as "still-born" or premature. The actual numbers under this head will probably never be correctly ascertained, whilst the burying of children so born within the precincts of dwelling houses can be followed with impunity. There is every rea-

* A theory has lately been started that elephantiasis may result, in some cases, from a syphilitic taint. The experience of Messrs. Waring and Day on the Malabar Coast, and our own observation in Madras, would point to the use of brackish or impure water, as the most probable source of this affection.

son to believe that the practice is not an uncommon one, and supposing any parties to be interested in the concealment of the remains, it affords facilities for so doing to an unusual degree.

"*Atrophy*" and "*Age*" are the recorded causes of death in 460 persons above the age of 65. Any figures with reference to extreme old age in natives of India must be received with caution. Very few even of the best informed of them have any idea of their correct ages, and the absence of public registers renders it impossible to verify the correctness, or otherwise, of this portion of the returns. Old people of all countries are apt to exaggerate their real ages, and this is probably the case here to a great extent. In England and Wales about *one-tenth* of the population live to complete the allotted "three-score years and ten" of man's life. In Madras, *one-eleventh* of the deaths are of persons beyond 75 years of age. But these figures, from the circumstance before noted, cannot be looked upon as altogether correct, or fit for comparison with the more accurate statistics of the Registrar General.

Sixty-seven persons are represented as having exceeded the age of 95; of these 26 were males and 41 females, from which it would appear that the latter attain greater longevity, than do the men. Two Europeans died at the ages of 75—85. The fact, however, of the great bulk of the European community leaving India before completing their sixty-fifth year, makes it impracticable to deduce any correct inference as to the effect of a tropical climate in prolonging or shortening the process of bodily decay. There is a general impression abroad, which is perhaps in the main correct, that the climate of Madras is very favorable to the prolongation of life in aged Europeans. The equable temperature, and the comparative rarity of diseases of the respiratory organs, and of rheumatic and gouty affections, which prove so fatal to the aged in England during the winter months, are doubtless all in favor of an uninterrupted decay of vital power, and so far tend to a natural termination of life by advanced age.

Two East Indians are registered as dying at "95 and upwards;" there is greater probability of the ages of this section of the community being correctly given, than of Hindoos or Mahommedans.

Seventeen East Indian females out of 112 dying within the year, had exceeded 65 years of age, whereas only seven

males out of 112 had attained that age. In this section of the community there is a very remarkable difference in the relative numbers of the sexes dying at advanced ages, showing that, so far as can be determined at present, the value of life in females beyond the child bearing epoch is very much superior to that of males at the same ages. The causes of this difference are not very apparent, but the subject will receive attention in future reports on the death-rates of the various classes of the population.

Under the head of "*Sudden deaths, causes unascertained,*" there are 117 entries, viz., 70 males and 47 females. It is most probable that heart disease, aneurism, sanguineous or serous apoplexy, caused the greater portion of the mortality under this head in the adults, and in young children it may be presumed that convulsive disorders were the chief sources of mortality.

In the class of "*Violent deaths,*" 147 casualties are registered. As might be expected from the habits of females in this country, their mortality from violence has been small in proportion to that of the males; the number of males and females respectively being 100 and 47.

Drowning seems to have been the most common cause of death. 28 persons were "found drowned" whether the result of accident, suicide or homicide, is unknown; 32 males and 14 females committed suicide by "drowning." It is popularly supposed that the women of this country are prone to suicide on the slightest provocation, such as domestic quarrels, or temporary bodily pain. The figures, however, show that the men place less value on their lives than women. "Hanging" is by no means so popular a mode of terminating existence. Only 3 males and 2 females are registered as committing suicide in this manner. The influence of religious belief is strongly marked in the preponderance of suicidal cases amongst the various classes of Hindoos. The number of suicidal cases may be briefly stated as follows :—

Europeans.....	None.	
East Indians.....	1	By gun shot.
Mahommedans.....	4	By drowning and hanging.
Hindoos.....	47	

The Hindoo suicides being in the proportion of 12 to 1 of the Mahommedan, instead of 6 to 1 according to the aggregate of deaths in the two classes.

It is somewhat remarkable that only two cases of fatal

poisoning should appear in the returns. The Natives are familiar with arsenic and its effects, as well as with most other active mineral poisons, nor is there any restriction whatever on their sale in every bazaar. They are likewise acquainted with many powerful vegetable poisons, and the thought must arise that these agents, mineral or vegetable, have been the causes of death in other instances than those reported, especially when it is considered that the symptoms of some of the diseases of this country, and those of certain forms of poisoning, are so similar, that they may be easily confounded by the unprofessional observer.

Poisonous reptiles are by no means uncommon in Madras the *Cobra de Capello* being perhaps the commonest snake met with. It is remarkable how few accidents occur from snake bite, considering the immense population, and the native practise of walking with the feet and legs bare. Three deaths only are reported from this cause, and as the venom of the cobra is generally fatal within a few hours, from the infliction of the wound, it is probable that all the accidents of this nature are included. The cobra never acts on the offensive, and will always get out of the way of human beings if it can ; this fact probably accounts for the rarity of accidents by snake bite. In Scinde and some portions of Bombay, where other poisonous snakes* of sluggish habits are common, accidents of this kind are very numerous.

The *accidental deaths*, resulting from external injuries, scarcely require comment. They are by no means numerous, in proportion to the population. Two boatmen, or divers, were killed by sharks, in the Madras Roads. A few cases of this kind are of annual occurrence, and men have been known to be seized when walking from the shore into the surf to assist in launching the masulah boats so bold and ravenous are these disgusting creatures. The accidents which occur in diving, will probably be less numerous now that a diving bell and requisite apparatus has been furnished to the town, to obviate the employment of native divers, in the recovery of lost anchors, &c.

Remarks on the causes of death amongst Europeans.

Having briefly adverted to the causes of death amongst the community as a whole, with especial reference to any marked differences in the death-rates of its various classes,

* The "Phoorsa," "Kupper," and "Black Cobra."

it may not be altogether uninteresting to examine, somewhat more in detail, the causes influencing the death-rates of the European residents.

The European community is made up of a very variable and floating population. It includes all Civil and Military Officers of Government whose duties oblige them to reside at the Presidency, a Regiment of European Infantry, some Artillery, Pensioners, Sailors, Officers on leave from the interior, returning to Europe, or proceeding to join their stations, and a yearly increasing number of independent settlers engaged in mercantile and other pursuits. It includes also the families of the foregoing classes. The census of this portion of the community has lately been taken, but the information unfortunately is not available for the purposes of this Report. From the foregoing description, however, it must be very evident that the male population is largely in excess of the female, and that the constant changes in the former, must tend to the production of a heavier rate of mortality than would be found in a more fixed population. No attempt has been made to separate the returns of "Military" and "Civil" Europeans for the present year, and from the absence of reliable data, as to the comparative strength of the two classes, the omission is of no great importance; but should the required information become available before the returns for 1860 are published, the rates of mortality in the two classes will be separately examined and compared.

During the year 1859, the deaths registered of Europeans numbered 122, and of these 89 were males and 33 females. These numbers probably represent, roughly, the relative proportions of the sexes; Europeans suffer less from "Zymotic" diseases than other sections of the community. As a rule, they live in large well ventilated houses (the military portion in good barracks) and are well fed and cared for, and the causes which tend to produce these diseases have less effect on the robust and well fed European, than on the East Indian and Native who do not enjoy such favorable conditions of existence.

In the class of zymotic diseases, 37 deaths are recorded; 25 males, 12 females; and on examining these figures more closely, we find that 15 of them are of children under five years of age. The proportion of deaths from "zymotic" diseases to the whole mortality is about 50 per cent. In Europeans, it is 30·3 or about 10 per cent. in excess of the

mortality from the same class of diseases in England and Wales, and 20 per cent. less than the general average in Madras.

Considering the mixed class of Europeans contributing to our mortality bills, these results must be regarded as satisfactory. The European soldier is proverbially reckless of his health. Besides drinking fiery spirits to excess, he thinks little of exposing himself to the action of a tropical sun, and spending his leisure hours in filthy bazaars, where zymotic influences are always at work. The European sailor "ashore for a spree" being less under control, is probably a worse subject for disease, and the only wonder is that so few casualties occur in these two considerable classes of the European community.

The higher classes of the residents, as is notorious, suffer very little in proportion to their strength from these diseases.

Cholera (8 cases) was almost entirely confined to the European Regiment, and persons residing in insalubrious localities.* No female died of it. Fevers, diarrhœa, and dysentery affected chiefly soldiers, and young children. One female died of "fever," age (15—25) and one of "diarrhœa" (age 55—65.) One child died of "croup," and one fatal case of "diptheria" is recorded. The cause of death in this latter case was certified by a Medical man, but from the absence of the disease in an epidemic form, it appears somewhat doubtful whether *true* diptheria has yet appeared amongst us.

Next to the zymotic class, Europeans suffer most from diseases of the "*Digestive Organs*," and particularly the male portion of the community. 23 deaths come under this head, and of these 20 are males and 3 females. "*Diseases of the liver*" proved fatal in 13 instances, and all males, between the ages of 15 and 45.

Disease of the Nervous system proved fatal to 14 persons, and of these, eight were young children, under five years of age, seven of whom died from "Convulsions," and one from "paralysis." "Apoplexy" was the cause of death in three instances.

With regard to the other classes of diseases, there is little to remark, beyond the rather larger proportionate number

* Two deaths occurred in the European Regiment; four in persons residing in Peddo Naick's pettah; one in Tondiarpett, and one in Royapooram.

of violent deaths (7) ; some of these occurred in connection with the shipping in harbour. One Officer died from fracture of the skull and concussion of the brain, resulting from a fall from his horse, and a private soldier sustained a similar injury, by falling from the Fort wall. Two casualties resulted directly from "intemperance," but it is feared that strong drink has been the indirect cause of death, in very many cases which are entered under different heads.

Before leaving this subject, a few remarks on the suitability of a tropical climate to young children of European descent, may not be out of place. With regard to the children of those in good circumstances, and who are well cared for, there is abundant evidence that the value of life up to a certain age, is much more favourable than in England and Wales. A moment's reflection will tell us that this must be so. The diseases which go to swell the terribly heavy infantile mortality in our native land, have here no resting place. Scarlatina is unknown. Measles is generally a mild disease, and seldom fatal. Small-pox here, as at home, can be averted by a timely resort to the protective influence of vaccination. Diseases of the Respiratory Organs, which kill so many tender infants at home, are here, happily for all concerned, comparatively rare. It is in the classes of "zymotic" and diseases of the "digestive," and "nervous systems" that the chief mortality in our young children is to be looked for. A considerable number die before the completion of their first year. A minute analysis of these deaths would probably show that they occur, either in those prematurely born, as a result of difficult dentition, or from want of proper nutriment, the children's parents being unable to afford the expense of native wet nurses to supplement that deficiency of breast milk, which is but too common amongst European women in this country.

The yearly births of our Christian population, it is to be regretted, are not entered in any general register, nor are there any available data from which to estimate them.* Mr. Neison in his able report on the Charity Branch of the Medical Fund in 1856, gave the percentage of yearly mortality of children in England and Wales, and of those

* The baptisms of children are registered in the various Catholic and Protestant Churches, but from the floating nature of the population, there is reason to suppose that the baptismal registers are no true guides, as to the number of births.

belonging to the Military, and Medical Funds of this Presidency, as follows:—

Ages.	England and Wales.	Military Fund.	Medical Fund.
0—1.	14.631.	7.714.	6.782.
1—2.	6.170.	5.156.	3.362.
2—3.	3.388.	3.171.	2.418.
3—4.	2.394.	2.127.	1.358.
4—5.	1.771.	1.347.	0.629.

and from his investigations, we are justified in concluding that all European children born in India, have a greater advantage in the "struggle for existence," up to the age of five years, than they would have had in England and Wales.

It is well known that the conditions of the married soldier's life in India are unfavorable to the health of children of tender age, and that a very high rate of mortality usually obtains amongst them.

The European Regiment stationed in the Fort, during the year, had no women or children with it, so that the death-rate of young children has not been influenced by any such adverse circumstance, as that above adverted to. Mr. Neison's tables prove that in the higher classes of the European community, the influence of the Indian climate is absolutely favorable to the existence of young children, and allow of the fair inference, that if our soldiers' children die in greater numbers than they should do, the causes of the excess of mortality are to a great extent preventable.

All experience goes to prove that children of European parentage do not thrive in the plains of India if they are detained beyond the ages of 7 to 10 years.* Those who can afford it, send their families to England or the Hills to be educated, and the number remaining beyond those ages in Madras, must always be limited, and as a rule they belong to parents who are too poor to avail themselves of the advantages of change of climate for their offspring. "The Lawrence Asylum" on the Neilgherries must be a great boon to the poorer classes of our fellow countrymen. East Indian children, it is stated, derive an equal benefit from a change to the Hill regions, and further experience perhaps will show, that with regard to the latter class a great improvement in their physical condition may result from a more general appreciation of the Hill stations as places of resi-

* There are exceptions to this general statement. In some few instances we have known children to thrive, physically, until attaining the age of puberty. Such cases however are very rare.

dence, during the years of active growth and development of mind and body.

The influence of locality in increasing or diminishing death-rates.

Having noticed the causes of death generally, and specially as affecting various classes of the community, it becomes a subject of importance to consider the influence of locality in determining the death-rates of this town.

Madras is spread over an area of about 30 square miles. Some portions of it are densely populated, others moderately, and some sparingly so. It will be no matter for surprise to find on an examination of the tables that the death-rates from "preventable" diseases are in certain localities above the average, and in others much below. It has been stated before, that the mortality from zymotic diseases in the whole population is equal to that from all other causes, or in round numbers 50 per cent. of the whole. Now, wherever these diseases prevail to a great extent, the sanitary conditions of the locality must be regarded as unfavorable, and the prevalence or absence of this class of diseases, may be looked upon as a test of the healthiness or unhealthiness of a locality. It follows, therefore, that if we find certain districts or localities where the proportion of deaths from zymotic causes is above 50 per cent. of the whole, and that the excess is not peculiar to particular classes of the community, it may safely be concluded that local influences have contributed to its production, and that the sanitary condition of the districts or localities in question is capable of improvement.

As pointed out by Dr. Farr in the Registrar General's Sixteenth Annual Report, the class of Zymotic diseases (which includes fevers, small-pox, cholera, dysentery and diarrhœa, amongst others) have the peculiar character of suddenly attacking great numbers of people, at uncertain intervals of time, in unfavorable sanitary conditions.

"The diseases of this class distinguish one country from "another, one year from another; they have formed epochs "in chronology; and as Neibuhr has shown, have influenced "not only the fate of cities, such as Athens and Florence, "but of Empires; they decimate armies, disable fleets; they "take the lives of criminals that justice has not condemned; "they redouble the dangers of crowded hospitals; they "infest the habitations of the poor, and strike the artizan "in his strength down from comfort to helpless poverty;

"they carry away the infant from the mother's breast, and "the old man at the end of life ; *but their direst eruptions "are excessively fatal to men in the prime and vigor of age.*"

"Pestilence and famine have always obtained the special "attention of Governments ; and epidemical maladies have "a special claim now to the attention of the statist, inas- "much as by prophylatic methods, of which vaccination is "an example, and by hygienic arrangements, the ravages of "epidemics may be greatly diminished. They are more "than any other diseases under public control, and may be "diminished to a large extent by sanitary measures."

No one will be inclined to dispute the accuracy of these remarks. It is an old and oft told story, that human life is every day sacrificed through ignorance, or negligence of the common laws of cleanliness and decency. It is one which much be told over and over again before the public mind, especially in this country, can be made to feel its full significance. Those districts of Madras which have shown unusually high death-rates from "zymotic" diseases will now be pointed out, and after being fully informed on this point, it must rest with the inhabitants of this large town to say whether the present state of things is to be permitted to continue, without let or hindrance.

The 1st Police Division includes the Fort and Mooteal-pettah. During the year 1859, sundry important changes were made in the Fort. The sea wall was lowered so as to admit the pure sea breeze, and a large amount of upstair accommodation afforded to the men of the Regiment stationed there. Plans for the improvement of the drainage have also received sanction. These changes are doubtless calculated to improve the sanitary condition of the locality. The deaths of the men in Hospital should properly have been included in the Fort district, but as the Hospital stands in the Second Police Division, and most of the men actually die in Hospital, they are so registered and come under the sub-division "John Pereira's Gardens." In the part of Black Town, included in the 1st Division, the zymotic diseases have, in a very slight degree, exceeded the average 50 per cent.

2nd Division.—In the populous part named "Peddo Naick's pettah," the zymotic diseases were 52 per cent. of the whole. In the other principal localities, Uttapaulayam, Big Parcherry, and John Pereira's, *below* the average. In John Pereira's only 41 per cent. This locality, although

over crowded, and full of low class, badly ventilated houses, stands on comparatively high ground, and is better drained than the other neighbourhoods.

3rd Division.—Although much has been done of late years, by opening out new roads to the sea beach, to better the ventilation of the great Mahommedan quarter of Triplicane, yet it still enjoys an unenviable notoriety for its proportion of zymotic diseases, viz., 58 per cent. These diseases press with unequal severity, however, on the population of that quarter. The Mahommedans lose 59 per cent. Hindoos the same proportion, and East Indians only 22 per cent. In Poodoopauk and Fisherman's pettah the average proportion of 50 per cent. is maintained. This division has no pure water supply. Most of the wells and tanks are polluted by percolation of the surface waters through old and recent grave yards. The water in some of the tanks used for drinking purposes is described as so impure, that a fetid, greasy scum forms on it, if left to stand for a short time. It is clear from the experience of all civilized nations that until a pure water supply is obtained, and intramural burials prohibited, no permanent improvement in the sanitary condition of this quarter can be expected.

4th Division.—The most populous part of this district is the old French settlement of St. Thomé, with its surrounding native villages and bazaars. As a place of residence for Europeans it has always enjoyed a good reputation. The houses are perhaps a little too close together, and the compound walls a little too high for free perflation, but its general salubrity is unquestioned. Zymotic diseases rarely affect those who live in decent houses, and in comparative affluence, and in the year under review, only two out of a total of fifteen Europeans and East Indians died from these causes, or 13 per cent. Amongst the Mahommedan residents of St. Thomé, the proportion was 39 per cent. In Hindoos 52 per cent. The proportion amongst all classes being a fraction below the average 50 per cent. These figures speak for themselves. The great disparity in the death-rates from preventable diseases in the various classes residing in this district is one of the strongest proofs of the inattention to sanitary measures on the part of the Hindoo community. The Mahommedan death-rate, it will be observed, is 20 per cent. below that in the neighbouring district of Triplicane. The people are less crowded, and the water supply, though

impure, is less contaminated by the corrupt influences which prevail so much in the former quarter.

The remaining districts of this division, Alvarpettah, Royapettah, Meersaib's pettah, Vristnampettah and Thanampett call for a brief notice. The most populous, viz., Royapettah, shows a death-rate from preventable disease in excess of the general average, and the unfavorable sanitary conditions of this locality are too well known to need any particular description. It is sufficient to point out, that of the Hindoo inhabitants, 63 per cent., and of Mahommedans 56 per cent. of the total deaths were of the "Zymotic" class. The proportion in the other districts was close upon the average 50 per cent.

Fifth Divison.—In this division, a great diversity in the death-rates from zymotic diseases, will be found to exist. It includes some of the most salubrious parts of the town, with others notorious unhealthy; the suburban villages, Nungumbaukum and Egmore, and the populous, ill-drained, and low-lying district of Chintadripettah, are to be found within this Police Division. The former are some of the healthiest and pleasantest localities in Madras to live in, the latter just the reverse. This, however, will be better seen on examining with attention the proportion of deaths from zymotic causes in the several localities. In Chintadripettah it is 50 per cent., but a close examination of the death-rates in the various classes, making up the total of 50 per cent., will show how much certain of them suffer above others. A good number of East Indians reside in this locality, and but few Europeans. These two classes may practically be taken as a whole in this instance. 14 deaths occurred in the year, and 10 of these come under the "Zymotic" class, the proportion being 71 per cent. Compare these figures with the deaths amongst the same classes in Saint Thomé, and we find *a difference of* 58 *per cent.*

The number of Mahommedans residing in Chintadripettah is inconsiderable. It includes the Sepoys of the Body Guard and their families. The occupation of the men may be considered a healthy one, and though liable to suffer from epidemics of cholera, they are not remarkable for any class of disease, excepting guinea worm, which appears to be endemic to the locality they reside in. The proportion of "zymotic" diseases in the Mahommedans of Chintadripettah was about 30 per cent. In Hindoos nearly 50 per cent.

In this locality the mortality of East Indians from zymo-

tic diseases is out of all proportion to that of other classes. The explanation is probably to be looked for in the wretched dwelling places they inhabit, and perhaps also in their poverty, or occupation, obliging them to choose so insalubrious a locality to live in.

In Egmore, the adjoining district, a more favorable state of things exists. The proportion of "zymotic" to all other fatal diseases, in all classes, is only 39, or 11 per cent. below the average.

Nungumbaukum shows only 36 per cent., and this very favorable rate is made up almost entirely by the classes of Hindoos, domestic servants, and their families inhabiting this suburb. A large number of Europeans reside here, but only one death occurred amongst them during the year. Very few East Indians live in this neighbourhood, and no fatal cases occurred amongst that class. A few Mahommedans of the higher classes with their motley establishments occupy houses in this district; out of a total of eight deaths in this class, five are recorded amongst the zymotic class, or 62 per cent.

The remaining localities in this division do not show any marked divergence from the general average, and need not on the present occasion be specially referred to.

6th Division.—The deaths from zymotic causes in this division, have varied from 46 to 71 per cent. In the order of salubrity, the localities stand thus :—

Perambore.....	46	per cent.
Vepery.....	47	„
Kilpauk.....	50	„
New Town.....	53	„
Pursewaulk.....	53	„
Pariamettoo.....	64	„
Vasarapaudy.....	71	„

The numbers of the various classes inhabiting these localities have probably something to do with the great difference found to exist in the death-rates. There can be no question, however, about the uncleanly condition of the two last named. It does not require a personal knowledge of them to infer that they afford ample scope for the well directed efforts of the sanitary reformer. A considerable number of East Indians reside in New Town, Vepery and Pursewalkum. New Town cannot be a healthy residence for them, the deaths from zymotic diseases being at the rate of 68 in the hundred; in Vepery only 41, and in Pur-

sewalkum 54. All these localities are susceptible of improvement in drainage, water supply and ventilation.

7th Division.—The last Police Division includes those districts north of the old town wall, viz., Tondiarpettah, Washerman's pettah, Royapooram and Cashemedoo. The death-rates from zymotic diseases are briefly shown in the following order :—

Washerman's pettah.....	41.
Royapooram.....	45.
Tondiarpettah.....	51.
Cashemedoo.....	60.

It will be seen that with the exception of the last named locality, the proportion in this division is very favorable in comparison with the average. Royapooram has a considerable nnmber of European and East Indian residents, and they apper to enjoy more than the average immunity from zymotic diseases. The causes of the excess of deaths in Cashemedoo, will doubtless discover themselves to those who have a personal knowledge of the locality.

The foregoing remarks on the various localities would have been of greater intrinsic value if the population, acreage, and proportion of the former to the latter, could at the same time have been exhibited. These particulars, however, are not available. In future years they may be forthcoming, when the vital statistics of Madras may be made as perfect as can be hoped for in a community where a large proportion of the people are attended in sickness by unprofessional persons, or left to die unaided.

The deaths occurring in Public Institutions, Hospitals, Dispensaries, &c., or in the private practice of the Medical Officers at the Presidency are registered correctly enough, but they form but a small portion of the whole. European Medical aid, or the advice of Natives and others trained in European Medical science, is not yet sufficiently appreciated by the bulk of the native community, to permit of a perfect system of registration.

A Government cannot be expected to do every thing in the way of bringing skilled medical aid to the doors of the public. For many years past, all that could be done was undertaken by the local Government. In the year under review, the institutions named below, afforded relief to no fewer than 88,256 sick persons and of these 8,031 were fed, clothed, and lodged, as in-patients.* That a vast

* The Military sick are not included in these numbers.

amount of misery and suffering has been relieved, and many hundreds of lives saved, must be evident to the most superficial observer.

Hospitals and Dispensaries in the Presidency.

	In-patients.	Out-patients.
General Hospital.	1,672	1,760
Lunatic Asylum...	84	...
Leper Hospital..	141	...
Eye Infirmary.	975	1,674
Lying-in-Hospital	1,613	5,885
Male Asylum	206	...
Female Asylum	298	...
Native Infirmary..	1,269	12,848
House of Industry...	38	...
Vepery Dispensary	689	11,002
Chintadripettah Dispensary... ...	...	12,371
Triplicane Dispensary..	1,046	21,052
Jesudasun's Dispy., Black Town...	...	13,633
Total of in and out-patients...	8,031	80,226
General Total...	88,256.	

With all the laudable efforts which have been made to palliate disease, and mitigate human suffering, the old maxim "prevention is better than cure" must be acknowledged to apply to the vast masses of humanity which compose our population. It is easier to keep off an epidemic of cholera than to stop it when it has once found a congenial spot for its development. It is better to mitigate the ravages of small-pox by a timely resort to vaccination, than to run the risk of allowing that loathsome malady to spread "naturally." It is easier to prevent fevers, diarrhœa and dysentery, by good drainage, and daily removal of putrefying animal excretions from the vicinity of human habitation, than to cure those diseases, when once established, and in the end, we may be certain that "preventive" measures are the most economical, both to the Government and the community.

In pointing out the direct evils resulting from neglect of

sanitation, it is scarcely necessary to remark on the very obvious remedies for the present state of things.

First and foremost, there is required for a very large section of the population a constant supply of pure and wholesome drinking water. Since the year 1853, schemes have been before Government to provide for this great want. There appears to be no question that the "Red Hills" tank, with certain improvements, is capable of supplying the whole of Madras north of the Cooum river, with very pure water. The tank is situated in a laterite basin and receives the drainage and rain-fall of many miles of country of similar formation, and the water is almost as pure as rain water. Engineers, it is understood, are not yet quite satisfied with the various plans which have been brought forward for supplying the southern districts of Madras, but there appears to be no doubt of the practicability of bringing good water within the reach of all who live there. The only question of any difficulty is that of expense.

Pure drinking water is one of the first requisites of man; without it, he sickens and dies. Water contaminated by sewage matters, by recent animal excretions, and by the decomposing remains of human bodies, it has been proved over and over again, cannot be drunk without producing disease, and, in epidemic seasons, a fearful loss of life. When the public can be got to appreciate the importance of this fact, it will not object to a moderate outlay, for an article absolutely essential to health and a prolonged existence. In a large and wealthy community, like that of Madras, the water supply of the town cannot be considered in the light of a Government duty. It is in every man's power to help, to the best of his ability, in obtaining this public want by cheerfully consenting to the inevitable "water rate," without which the Municipality cannot be expected to undertake the necessary works.

An adequate water supply is a necessary adjunct to the proper drainage of a locality. The drainage of this town cannot, in its present state, be regarded as a model of perfection.

It has been found by experience, that the sewage of London, with its two millions of inhabitants, cannot be turned into a tidal river with impunity (the average temperature of the water being only about 50°). In Madras we empty all the drains which can be constructed "with a fall" into the Cooum River—a stream which communicates with the

sea only for a few days in each year, after the heaviest monsoon rains, and for eleven months and more, is nothing but a stagnant pool, its contents rotting and festering under a fierce tropical sun, which for hours together keeps the fluid portion of the misnamed "river" at a temperature of from 80° to 90°.

The drains which empty directly into the sea, and which convey away the sewage of the most populous portion of the town are at all times offensive evils, and these must continue unabated until a well regulated system of daily "flushing" can be introduced, and the exclusion of solid filth or refuse from the small drains can be effectually prevented.

The mechanical and engineering difficulties in the way of a perfect system of drainage for this town are not perhaps altogether insuperable. The question has been discussed by able Engineers whose opinions are on record, but whose surveys and estimates do not come within the province of extra-professional criticism. Granting the practicability of an extension of the best known system of sewerage, it yet remains to be seen whether the *uniform high temperature* which obtains here, has been sufficiently considered as an important element in the success or failure of any of the proposed plans.

Sewage matters, in temperate climates, are carried away from the neighbourhood of large towns without much decomposition. The River Thames, notwithstanding its pollution, is inodorous in the winter months and so long as the temperature of the water remains low. But after a hot summer, and when the temperature of the water rises to 65° or 70°, chemical changes proceed more rapidly, new combinations are quickly formed (some of them perhaps constituting the germs of epidemic disease), sulphuretted hydrogen is evolved, and the whole atmosphere of the river banks is poisoned by its offensive odour. In Madras this state of things is *permanent*. Water in contact with organic matters at a temperature of from 80° to 90° brings about almost immediate decomposition. The actual temperature of shallow pools of water, or of the fluids in open drains in this town, may be easily ascertained by direct experiment, but there is no doubt it is just the kind of "gentle heat" which chemists employ, when they wish to procure artificial decomposition and disengagement of gases, in the laboratory. It is a question, therefore, whether the most perfect system of drainage, even supposing the sewers to be flushed twice in the twenty-

four hours, would relieve Madras entirely of the offensiveness which attends the rapid resolution of organic matters into their ultimate elements.

There can be no question under such circumstances as to the propriety of a rigid exclusion of all solid refuse from the present drains, or those hereafter to be constructed. Drains at the best in this country are evils, but they become doubly dangerous when they serve as receptacles for human ordure and other animal refuse. For these matters nothing will satisfy the requirements of a tropical climate but a daily removal beyond the limits of human habitation, where they should be employed, in the way Nature intended them to be used, as fertilizers of the soil.*

The habits of the Native community, in regard to public decency, have of late years, under Police supervision, undergone a marked change for the better. Public latrines have in several localities been erected for their accommodation, and appear to be duly appreciated. Still there is much room for improvement. The outskirts of Native villages, and populous suburbs, are by no means so savoury to the public nostrils as they might easily become under more efficient sanitary supervision and an increase in the number of public latrines.

One of the pleasantest roads in Madras, that from the Fort to Saint Thomé, on which the European inhabitants are wont to enjoy the sea breeze, is in several places very offensive from the native fishermen and others using the sea beach as a place d'aisance. This practice, it will be observed, is much facililated by the presence of thick bushes of "Elephant grass" especially opposite the fishing village adjoining Chepauk and near the Ice House; a similar use of the beach has been much complained of by the residents of Royapooram.

The importance of strict attention to the removal of surface filth, in a sanitary point of view, is at all times great, but

* The sanitary regulation of the Divine lawgiver, recorded in Deut. chap. xxiii., ver. 12, 13, is as important to the inhabitants of crowded cities of the present day, as it was to the Israelitish host, some 3,300 years ago. With all our talk about "sanitary science," we are forced to admit that the soil of our lands "without the camp," or "city," is the only fitting receptacle, for the decaying animal or vegetable refuse of crowded communities. The problem yet to be solved is, how to convey the refuse of large towns to its natural destination without impairing its fertilising properties, or endangering human life. No system of drainage can be perfect, unless based upon a recognition of the fact, that the soil is Nature's great disinfectant and purifyer.

particularly so when epidemic cholera prevails. It appears to be proved to the satisfaction of many of the most able observers of the day, that the excretions of those affected with the disease, in a certain stage of decomposition, will produce choleraic symptoms both in man and in some of the lower animals. If one thing more than another has been proved in medicine of late years, it is that typhoid fever, and some forms of diarrhœa, result solely from fœcal poisoning. Sanitarians of the 19th century are unanimously in agreement that where human excretions are allowed to taint the air we breathe, or the water we drink, there high death-rates will as certainly prevail.

There remains one other subject, of great importance in connection with the variable death-rates of the population, to be briefly alluded to. It is the insanitary condition of the dwelling places of a vast majority of the native population. The subject is confessedly a difficult one to meddle with. Natives cannot be persuaded that their style of house architecture is but ill-adapted to secure them a fair share of health, and they are too apt to attribute illness to any but the rightful causes. They perhaps incline a little too much to the maxim that "a man's house is his castle," and that he has a right to order it, and screen it, as seems good in his own eyes. The remedy must be sought for in the more general diffusion of sanitary knowledge amongst the educated classes, who, it is hoped, will in time become alive to the defects adverted to, and set a good example to their ignorant fellow countrymen.

Statement showing the average of retail prices of staple articles of food for the year 1859, *in the Town of Madras.*

		Rs.	A.	P.
Rice, 1st sort	℔ garce of 400 mercals or lbs. 10,400.	395	7	4
Do. 2nd do	℔ do. of 400 do. or lbs. 10,400.	366	6	0
Wheat	℔ do. of 400 do. or lbs. 10,400.	378	9	4
Salt	℔ do. of 400 do. or lbs. 10,400.	150	0	0
Chenna, 1st sort	℔ do. of 400 do. or lbs. 10,400.	290	12	0
Raggy	℔ mercal of 8 measures or lbs. 26	0	6	11½
Ghee	℔ candy of 20 maunds or lbs. 526	207	8	0
Sugar, 1st sort	℔ maund of 8 viss or lbs. 26	3	8	3
Do. ordinary	℔ do. of 8 do. or lbs. 26	1	14	0
Bread, white	℔ lb of 16 ounces	0	1	9
Do. brown	℔ lb of 16 do.	0	1	6
Biscuits	℔ lb of 16 do.	0	5	0
Milk	℔ pint	0	0	10
Mutton fat	℔ lb of 13⅓ palloms	0	4	10
Mutton, 1st sort	℔ lb of 13⅓ do.	0	6	1
Beef, 1st sort	℔ lb of 13⅓ do.	0	4	1
Fowls	each	0	7	5
Chickens, large	do.	0	6	11
Do. small	do.	0	1	10¼
Firewood	℔ candy of 20 maunds or lbs. 520	2	13	0
Potatoes	℔ maund of 8 viss or lbs. 26	1	14	0
Arrowroot	℔ lb of 13⅓ palloms	0	5	6
Chillies	℔ maund of 8 viss or lbs. 26	1	14	0
Coriander seeds	℔ do. of 8 do. or lbs. 26	1	5	2
Dholl	℔ mercal of 8 measures or lbs. 26	0	13	1½
Eggs	℔ dozen	0	2	6
Flour, wheat	℔ lb of 13¾ palloms	0	0	10
Do., rice	℔ measure of 8 ollocks or lbs. 3⅓	0	1	4
Mustard seeds, country	℔ lb of 13⅓ palloms	0	1	10¼
Pepper	℔ lb of 13⅓ do	0	3	9
Salt, white, hospital	℔ lb of 13⅓ do	0	0	7½
Toddy	℔ measure of 8 ollocks or lbs. 3⅓	0	2	6
Vinegar	℔ do of 8 do or lbs 3⅓	0	3	6

General Table of Causes of Death in Madras at different periods of Life, among all classes, in the year 1859.

	Causes of Death.	Males. All ages.	Ages at Death. Total under 1 year.	1	2	3	4	Total under 5 years.	5	10	15	25	35	45	55	65	75	85	95 and upwards
	All Causes	5,409	1,146	122	230	158	94	1,750	246	183	365	608	540	505	471	326	260	129	26
	Specified Causes	5,339	1,093	122	230	157	94	1,696	244	182	364	604	538	504	469	323	260	129	26
I.	Zymotic Diseases	2,710	138	63	155	137	81	574	207	138	240	378	294	274	273	161	122	42	7
	Constitutional Diseases.																		
II.	Diseases of Uncertain or Variable Seat	315	4	0	3	1	5	13	9	11	27	37	48	51	52	38	22	5	2
III.	Tubercular Diseases	276	3	0	2	2	1	8	2	5	31	45	43	52	35	32	16	5	2
	Local Diseases.																		
IV.	Diseases of the Nervous System	588	415	19	21	7	1	463	5	9	8	19	24	20	19	11	6	4	0
V.	Do. of the Organs of Circulation	31	0	0	0	0	0	0	0	1	3	8	6	8	3	1	1	0	0
VI.	Do. of the Respiratory Organs	158	10	3	4	2	1	20	6	4	15	22	29	19	17	15	5	6	0
VII.	Do. of the Digestive Organs	425	219	33	38	5	4	299	3	2	17	28	27	17	15	10	4	3	0
VIII.	Do. of the Urinary Organs	36	0	0	0	0	0	0	0	1	2	4	6	11	6	1	5	0	0
IX.	Do. of the Organs of Generation	38	0	0	0	0	0	0	0	0	2	11	5	6	9	4	1	0	0
X.	Do. of the Organs of Locomotion	42	1	0	2	0	0	3	1	0	0	8	10	6	7	5	1	1	0
XI.	Do. of the Integumentary System	116	2	2	1	1	0	6	2	0	9	20	24	24	14	11	4	2	0
	Diseases of Growth—Nutrition and Decay.																		
XII.	Malformation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
XIII.	Premature Birth and Debility	314	300	0	1	0	0	301	0	0	0	2	3	2	2	3	1	0	0
XIV.	Atrophy	161	0	0	0	0	0	0	0	0	1	2	4	2	8	22	56	53	13
XV.	Age	29	0	0	0	0	0	0	0	0	0	0	0	0	0	7	13	8	1
XVI.	Sudden Deaths (Causes unascertained)	70	53	0	0	1	0	54	2	1	1	4	2	1	2	3	0	0	0
XVII.	Violent Causes	100	1	2	3	2	1	9	9	11	9	20	15	12	9	2	3	0	1
	General Total	5,409	1,146	122	228	160	94	1,750	246	183	365	608	540	505	471	326	260	129	26

General Table of Causes of Death in Madras at different periods of Life, among all classes, in the year 1859.

	Causes of Death.	Females.																
		Ages at Death.																
		All Ages.	Total under 1 year.	1	2	3	4	Total under 5 years.	5	10	15	25	35	45	55	65	75	85	95 and upwards
	All Causes	4,883	785	130	184	192	103	1,394	238	150	480	642	426	332	370	333	275	199	41
	Specified Causes	4,836	753	128	183	192	102	1,358	238	148	480	639	425	331	369	333	273	198	41
I.	Zymotic Diseases	2,561	125	84	137	164	87	597	214	123	254	345	249	199	223	178	120	54	5
	Constitutional Diseases.																		
II.	Diseases of Uncertain or Variable Seat.	282	8	1	4	9	2	24	5	8	21	30	39	37	40	34	25	14	5
III.	Tubercular Diseases	210	1	0	1	0	0	2	2	1	23	44	42	26	34	27	6	3	0
	Local Diseases.																		
IV.	Diseases of the Nervous System	434	309	15	15	8	6	353	7	2	7	9	12	9	12	11	11	1	0
V.	Do. of the Organs of Circulation.	21	1	0	0	0	0	1	1	0	0	2	3	5	6	2	0	0	1
VI.	Do. of the Respiratory Organs	144	9	4	3	2	2	20	0	4	13	30	21	17	13	12	11	2	1
VII.	Do. of the Digestive Organs	268	134	22	20	7	4	187	3	1	10	19	13	11	11	7	2	3	1
VIII.	Do. of the Urinary Organs	3	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0
IX.	Do. of the Organs of Generation.	316	0	0	0	0	0	0	0	2	135	146	23	6	1	2	0	0	1
X.	Do. of the Organs of Locomotion.	15	0	0	0	1	0	1	0	0	3	2	2	2	4	1	0	0	0
XI.	Do. of the Integumentary System	57	4	2	3	0	0	9	1	1	3	5	16	9	6	5	2	0	0
	Diseases of Growth—Nutrition and Decay.																		
XII.	Malformation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
XIII.	Premature Birth and Debility	165	160	0	0	0	0	160	0	1	0	1	0	0	1	1	1	0	0
XIV.	Atrophy	231	0	0	0	0	0	0	0	0	2	1	2	4	9	26	73	91	23
XV.	Age	82	0	0	0	0	0	0	0	0	0	0	0	3	5	23	20	29	2
XVI.	Sudden Death (Causes unascertained).	47	32	2	1	0	1	36	0	2	0	3	1	1	1	0	2	1	0
XVII.	Violent Causes	47	2	0	0	1	1	4	5	5	9	6	5	3	3	2	2	1	2
	General Total	4,883	785	130	184	192	103	1,394	238	152	480	643	428	332	370	333	275	199	41

PART II.

REVIEWS AND NOTICES OF BOOKS.

Anatomy of the Arteries of the Human Body, Descriptive and Surgical, with the Descriptive Anatomy of the Heart. By JOHN HATCH POWER, M.D., Fellow and Member of Council of the Royal College of Surgeons; Professor of Descriptive and Practical Anatomy in the Royal College of Surgeons; Surgeon to the City of Dublin Hospital, &c., &c. *With Illustrations* by B. WILLS RICHARDSON, F.R.C.S.I., Examiner in the Royal College of Surgeons; Surgeon to the Adelaide Hospital, &c.—Dublin: FANNIN and Co., Grafton St.—London: LONGMAN and Co., SIMPKIN and Co., 1860, small 8vo., pp. 374.

THE amazing revolution which has taken place in the literature of pure Anatomy, within the last half century, is really astonishing. Prior to the period we have alluded to, the books solely devoted to this branch of Medical Science were few in number; and the information which they attempted to convey was of the most meagre and common place description. Authors then enumerated merely what they saw—what was simply evident to the senses, without the slightest effort to carry the student beyond the dry routine of mere detail, and by such means affording a species of relief to the wearied mind, striving to toil through a chaotic labyrinth of crude material sufficient to damp the energies of even the most aspiring temperament. To render matters still more intolerable, ideas were too often expressed in a jargon so uncouth and barbarous as to make it appear to be the aim of the author, rather to mystify than to elucidate a subject which, under the most favorable circumstances, must always be invested with a certain amount of peculiar difficulty, calculated in repeated instances, (as our lengthened experience has taught us) to deter the youthful tyro from proceeding with a pursuit, the very elementary principles of which had taxed his powers of acquisition too severely.

The last five and twenty years have, however, witnessed

a wonderful alteration in one respect; for, latterly, it has become as much the fashion to endeavour to simplify, as it was formerly the anxious desire to render obscure; and books on Anatomy would now appear to be written not for the initiated few, but rather for the many. For, although the attachment of a muscle, or the course of an artery or vein, must always as a fact remain the same as long as the human body continues to be similarly constituted, still a better mode of describing this fact has been latterly adopted; and with it the art of interspersing useful and interesting truisms with dry and monotonous details. This system of proceeding, even for the brief period that it has as yet been called into existence, has already been attended with the most incalculable advantage to the generality of students.

To acquire a complete and thorough knowledge of anatomy is perhaps one of the most difficult tasks in the whole range of the medical profession: and yet, without a certain familiarity with its great outlines, no one can ever, in the present day, expect to acquire and continue to maintain the character of an accomplished surgeon or physician, as to be ignorant on this point, is to be equally ignorant of those great truths in physiology, on which the very foundation of our art is built. The day for following the old beaten track of treating symptoms according as they made their appearance is rapidly passing away, and he whose ambition would now prompt him to make for himself a name in his calling, must, with the skilled hand of a master, search for the root of the disease, and learn to attack it in its stronghold. Empirical practice, with that servile submission to the dogmas of those who preceded us, is fast losing the supremacy that it once enjoyed, and the various original articles with which our periodicals are densely studded, show distinctly that the present generation is at last beginning to think for itself, and to give utterance to those thoughts with a logical precision and force of argument that must procure respect even from those most prejudiced in favor of antiquated lore.

In these days of rapid progress the task of an author is by no means as easy as it formerly was; for now it is not considered sufficient to write, on any given subject, merely with a close adherence to facts; but, if we expect to be read, we must likewise endeavour to convey our ideas so as to blend the interesting with the positively useful. Those for whose profit and amusement the literary man is compelled to

subsidise his intellectual faculties have, from the multitude of those engaged in the same pursuit, become absolutely Epicurean in their tastes, and will turn in disgust from those more homely viands which appeared to agree so well with the less pampered appetites of our simpler forefathers. A polished diction with a smooth and easy flow of words, is now much more necessary to insure success than the most able and elaborate handling of the most abstruse and intricate subject, and as an actual illustration of this fact we have only to direct attention to the book at present before us.

Dr. Power's work would appear to have attained its present standard, not only in size but also in composition, not at a single bound, but by gradually adapting itself to the prevailing fashion of the day. Let us therefore take a glance at its history which is extremely curious.

To commence with its infant life, as a mere bantling in swaddling clothes; it owed its first existence to the labours of Doctor Valentine Flood, Demonstrator of Anatomy in the then Richmond School of Medicine in Dublin; and each copy of the work was sold at the modest price of half a crown. As the author was a man of the most unquestionable ability, and as the book itself, as a mere anatomical production, was one of the best that had appeared in print up to that period, the First Edition was soon exhausted. It was as quickly followed by another, much increased in size, and devoted not only to the descriptive delineation of the arterial system, but likewise to the several operations which either had been performed, or were liable to take place, on the various principal trunks in the human body. This Edition had again run out, and the untimely death of Dr. Flood caused a long interval to elapse, when Doctor Power, in the year 1850, undertook the revision of the work, and, in a very creditable manner, brought the information which it contained up to the level of the then present day, and so insured its vitality from utter extinction. Another ten years had, since then, elapsed, and the student world was again craving for a fresh supply of this literary material, and Dr. Power, a second time, undertook the arduous task of catering for its benefit. He saw, however, at a glance, that the taste of the day had become altered, and with an intuitive wisdom he determined to rewrite and remodel the whole. This he has done so effectually, and at the same time, so successfully, that it is almost impossible to recognise the crude skeleton of the original work, under the polished and

highly finished production which has just issued from his hands.

The nature of the work forbids our devoting any lengthened space to extracts, and we shall confine ourselves, in this respect to one, regarding one of the most important arteries, subject to operation or likely to become involved in disease of the surrounding structures. We allude to the Subclavian Artery, the deligation of which, in its *first stage*, has been, we believe, always fatal. As to this assertion we desire to write guardedly, as it *may* have been successfully performed, although Dr. Power's list of ten cases (page 119) extending over a period of 34 years, would seem to argue its unvarying fatality, and the same is stated in Mr. Gray's* recent and very valuable work.

Before, however, entering upon this subject, we may with advantage enumerate the leading contents, and method of arrangement of Dr. Power's work.

It opens with a very admirable chapter, accompanied by some excellent full-page woodcuts.

The Descriptive Anatomy of the Heart; this is treated in a full and well arranged detail of all that is known on this important subject, and the author has collected, in a concise and elegantly written paper, the views of those writers who have specially considered the structure and functions of this organ and its several parts.

Passing onwards, the author next considers the *Pulmonary Artery*, the *Arch of the Aorta*, and its branches, and having disposed of these, proceeds to consider the arteries subject to operation. In each instance we find the actual and relative Anatomy minutely described, more particularly with regard to the parts likely to be implicated in, or exposed by, operation: the details of the latter, as regards deligation, are next set forth, and not only are brief particulars afforded as to special cases, but, when required, tabular statements of the results are afforded.

A system of investigation so well planned and ably executed, has resulted in the production of a work so valuable to the operative Surgeon, that no eulogium of ours is needed to impress upon our readers the desirability of their possessing the volume.

In illustration of the author's style we subjoin a length-

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* Vide Anatomy, Descriptive and Surgical, by Henry Gray, F.R.S., &c. 2nd Ed., p. 363.

ened extract, as a fair specimen of the purely original part of the book. He describes (pp. 113—118) the

SUBCLAVIAN ARTERIES.

These arteries are two in number, a right and left. The right subclavian arises from the arteria innominata, and the left from the arch of the aorta; each is usually described as having three stages. In the *first stage* it ascends from its origin to the internal margin of the scalenus anticus muscle; in the *second* stage it passes behind that muscle; and in the *third* it proceeds obliquely downwards and outwards, till it arrives at the lower margin of the first rib, where it changes its name and becomes the axillary artery. In this course the artery forms an arch, the convexity of which looks upwards, and the summit of which is usually opposite to the sixth cervical vertebra. As the subclavian arteries differ in their origins, their relations must necessarily differ in the first stage, and, therefore, a separate description will be necessary for each; but in the second and third stages their relations are alike.

First stage of the Right Subclavian.—The right subclavian artery arises from the arteria innominata at the superior outlet of the thorax, immediately behind, and on a level with, the upper portion of the right sterno clavicular articulation, corresponding to the interval between the two origins of the sterno-cleido-mastoid muscle; it then passes obliquely upwards and outwards, till it reaches the internal margin of the scalenus anticus muscle. In this part of its course it is covered *anteriorly* by the integuments, by the platysma myoides, except in the immediate neighbourhoood of its origin, by the clavicular origin of the sterno mastoid muscle, and by the cervical fascia, forming the sheath of this muscle; by the sterno-hyoid and sterno-thyroid muscles, the former of which is in more intimate relation to the artery. Between the sterno-mastoid muscle anteriorly, and the sterno-hyoid and sterno-thyroid muscles and scalenus anticus posteriorly, an interval exists in which we find a quantity of loose areolar tissue together with several veins, one of which, sometimes of considerable size, passes across the posterior surface of the inferior portion of the sterno-mastoid muscle, and establishes a communication between the anterior and external jugular veins; it is sometimes endangered in the operation for wry neck. When these parts have been removed, the artery will be found covered more immediately by the internal jugular vein, close to its junction with the subclavian vein to form the right vena innominata; the union between those two veins usually takes place in front of the internal margin and close to the insertion of the scalenus anticus muscle, in which situation the commencement of the vena innominata lies upon a plane anterior, and a little inferior to the artery; lower down, on account of their difference of obliquity, they become more distant, the vein lying on the outer side. The vertebral vein as it is about to terminate in the

internal jugular, usually passes anterior to the artery. In front of the artery we observe also the superior and middle cardiac nerves descending; and near the origin of the vessel, the pneumogastric nerve, and sometimes its recurrent branch (which in this situation occasionally begins to detach itself from its parent trunk) are situated in front of it. Vieussens describes a plexiform appearance upon the pneumogastric nerve in this situation, corresponding to the origin of the recurrent, and which he calls the plexus gangliformis; these nerves therefore pass between the artery and the vena innominata. The phrenic nerve also forms an anterior relation of the subclavian artery: immediately after this nerve has passed from off the scalenus anticus muscle, it gets under cover of the internal jugular vein close to its junction with the subclavian, and insinuates itself into a small interval which exists between the origin of the thyroid axis and the inner margin of the muscle; and it is in this situation that the nerve lies in front of the right subclavian artery in its first stage; generally speaking it does not lie in direct contact with the artery, but is borne from off this vessel by the origin of the internal mammary artery, anterior to and across which the nerve usually passes. Sometimes the phrenic nerve lies upon a plane posterior to the internal mammary artery. *Posteriorly* the first stage of the right subclavian artery is related to the recurrent nerve, inferior cardiac nerve, and still farther back to the trunk of the sympathetic nerve where it forms its inferior cervical ganglion: this ganglion is situated behind the artery close to the origin of the vertebral. The longus colli muscle, with the interposition of some loose areolar tissue, lies behind the artery; the apex of the cone of the pleura lies a little inferior to the outside, and on a plane posterior to the vessel.

First stage of the Left Subclavian Artery.—The left subclavian artery arises within the cavity of the thorax, from the arch of the aorta opposite to, and to the left side of, the second dorsal vertebra, and ascends slightly outwards into the neck, till it reaches the internal margin of the scalenus anticus muscle, where the second stage commences. Like the common carotid artery, the first stage may be divided into two portions,—*athoracic* and *cervical*: the *thoracic* portion extends from the origin of the vessel from the arch of the aorta to the upper outlet of the thorax; and the cervical extends from this point to the internal margin of the scalenus anticus. In its thoracic portion it is related, internally, to the left carotid artery, which is also situated on a plane anterior to it; to the æsophagus, thoracic duct and recurrent nerve, which are on a plane posterior to it, and to the internal jugular vein and its junction with the subclavian to form the left vena innominata; these large veins are also situated on a plane anterior to the artery: *externally* it is related to the top of the left lung and pleura: *anteriorly* it is covered by the sternum, sterno-clavicular articulation and sterno-hyoid and sterno-thyroid muscles; it is overlapped by the

left lung and pleura, and it is crossed obliquely near its origin by the left pneumogastric nerve ; the phrenic nerve is anterior to and parallel with the artery. The left vertebral vein lies anterior to it, and on the same plane we find the origin of the left vena innominata as already described : *posteriorly* the artery corresponds to the second dorsal vertebra at its origin, afterwards to a short portion of the spinal column above this vertebra, to the longus colli muscle, and to the sympathetic nerve and its inferior cervical ganglion. The cervical portion is very short : it has anterior to it the parts already mentioned as lying in front of the artery of the right side ; in front of it also we find the internal jugular vein, with the vagus and phrenic nerves. The latter nerve, at the inner margin of the scalenus anticus muscle, passes inwards towards the middle line, and crosses in front of the artery at the termination of the cervical portion of its first stage ; and the terminating portion of the thoracic duct, as it is about to enter the posterior part of the left subclavian vein at its junction with the internal jugular, lies anterior to the artery in this situation.

From the preceding account it follows that the left subclavian artery differs in the following respects from the right : the left subclavian is longer and proportionably more slender ; it arises within the cavity of the thorax, and from the arch of the aorta ; it is situated at the left side of the spine which here forms a concavity, and it is in close relation with the left side of the second dorsal vertebra : for these reasons it lies much deeper, and farther removed from the surface than the right : its direction is also more vertical, and consequently nearly parallel to the pneumogastric and phrenic nerves ; it is intimately connected with the œsophagus and thoracic duct and left longus colli muscle, and it is covered in front and externally by the left lung and pleura : the internal jugular vein is nearly parallel with it internally, whilst at the right side the internal jugular crosses in front of the subclavian artery : lastly, the left subclavian vein lies superior to a considerable portion of the artery in its first stage, and also internal to it ; whilst on the right side the vein is inferior to the artery.

Second stage of the Subclavian Arteries.—Each of the subclavian arteries in its second stage is covered, *anteriorly* by the integuments, platysma, cervical aponeurosis, clavicular origin of the sterno-cleido-mastoid muscle, and frequently immediately behind this muscle, by the transverse branch of communication between the anterior and external jugular veins ; and by the scalenus anticus muscle which separates the artery from the subclavian vein ; the latter vessel lying lower down, and covering the insertion of the muscle. The phrenic nerve is usually enumerated amongst the anterior relations of the subclavian artery in the second stage ; and from the obliquity of its course across the anterior surface of the scalenus anticus muscle, until it becomes related to the internal mammary artery, it

may be considered, properly speaking, as an anterior relation both to the first and second stages of the artery. *Posteriorly* the artery is related to the apex of the cone of the pleura and to the scalenus posticus muscle ; the brachial plexus of nerves lies on a plane, posterior to the artery in this stage, and partly accompanies the artery into its third stage.

Third stage of the Subclavian Arteries.—Each of the subclavian arteries in its third stage takes a direction obliquely downwards and outwards, and having arrived at the lower margin of the first rib, changes its name, and becomes the axillary artery. In this course it is covered *anteriorly* by the clavicle and subclavian muscle, immediately above which it has other important relations, which we may now proceed to study. On raising the integuments, platysma and fascia, together with some of the supra-clavicular branches of the cervical plexus of nerves from off the front of the artery, we usually observe a space between the trapezius muscle on the outside, and the sterno-mastoid on the inside : in some cases, however, the fibres of these muscles meet at their clavicular attachments, so that in order to expose the artery it becomes necessary to divide transversely some of the fibres of the trapezius. In the deeper layer or stratum, we observe the posterior belly of the omo-hyoid muscle passing at first horizontally inwards, and then slightly upwards and inwards towards the larynx. A triangular space is thus formed, bounded inferiorly by the clavicle, internally by the posterior margin of the sterno-mastoid muscle, and externally by the posterior belly of the omo-hyoid ; in this space which is called the *posterior inferior lateral triangle* of the neck, the artery may be felt emerging from behind the scalenus anticus muscle accompanied by the brachial plexus of nerves. If we were to judge of the size of this space by the appearance it presents in the dissected subject, we would be led into great error. It is, in fact, hardly appreciable while the muscles which bound it preserve their natural relative position, though dissection may make it appear of considerable extent. The brachial plexus lies behind the artery, but a large portion of it projects at its outer or acromial side. The vein is situated on a plane anterior to the artery, but inferior and nearer to the middle line. The anterior thoracic nerve begins to descend in front of it in the lower part of this stage ; and lastly it is crossed anteriorly by the transversalis humeri artery, which runs in this situation nearly parallel to the clavicle. *Posteriorly* it rests on part of the scalenus posticus, on the inferior fasciculus of the brachial plexus, on the origin of the middle thoracic nerve, which supplies the lessor pectoral muscle, and on the first rib. In operations on the axillary artery and about the shoulder, the artery may be easily compressed against the rib for the purpose of preventing hæmorrhage.

The foregoing is followed by a detail of the cases of oper-

ation upon the artery in its first stage, with directions for the performance of it on the *right* side; the arguments for and against that procedure on the *left* side (generally considered impracticable) are entered upon: and a detailed statement given as to its performance by Dr. Rodgers of New York.

This and the other, especially the opening, chapters are illustrated by wood engravings of very high excellence, not only as works of art and anatomical diagrams, but as affording a clear and faithful representation of the parts concerned in those critical operations. Upwards of 60 illustrations, scattered through the work enhance its value and increase its practical utility, both for the student and the operator. The extracts we have given from Dr. Power's book will be quite sufficient to afford the reader a clear idea of the work as a whole: and at the same time we must not omit again, to, remark that we are indebted for the admirable manner in which it is illustrated, to Mr. B. Wells Richardson who, in the excellence of his woodcuts, has distinctly shown the high pitch of perfection that can be attained by a gifted amateur.

In conclusion, we have no doubt that this work (which is presented to us in a very elegant form, the typography being equal in excellence to the illustrations, than which no higher praise need be given) will be appreciated as it deserves; and that it will thus add another laurel to the wreath which has hitherto crowned the efforts of the Irish School of Surgery.

Cancer Cures and Cancer Curers. By T. Spencer Wells, F.R.C.S., Surgeon to the Samaritan Hospital, Lecturer on Surgery, Chief Surgeon to the British Hospital at Renkoi during the Russian War, &c. London: John Churchill, 1860. Small 8vo. pp. 93.

The subject of this pamphlet, and the objects intended by its publication, may be equally inferred from its title and the name of its well known author who cannot be suspected, by any one, of other than sound views upon the important subject of Cancer. But we confess that, though we opened this little volume without apprehension as to the object of it, we were not prepared to find in its pages the masterly

exposé that they afford as to the asserted cures of Cancer by Quacks of the Modern School.

This pamphlet is, in great part, in spirit a popular essay; and much as we object, *as a rule*, to this method of vindicating the honor of our Profession, yet the public interest is too largely involved, in the present question, to permit us to quarrel with what is at once a dignified and conclusive appeal, upon strictly professional grounds, however, to public opinion, against fraud and imposture of a life-destroying character.

Than cancer in its advanced stage, and when implicating vital organs, no more fatal malady can be named; accompanied as it is by suffering unceasing in its duration, often almost unbearable in its intensity; these horrors aggravated by the dread that others may inherit the fatal taint, and that what they *witness* now they may be doomed to *suffer* hereafter;—all these reflections, too true to be denied, too mournful to be neglected, have made the name of cancer familiar to, and dreaded by, almost every one.

When to these facts, on which we have but slightly touched, are added the knowledge of the insidious nature of the disease, and the frequent instances in which the best efforts of the most skilful surgeons have failed to arrest its progress; we have a not unnatural explanation of the reasons why cancer curers have hitherto had so fair a field in which to vend their worse than useless wares; to furnish a *rechauffe* of ancient drugs renamed to suit the public taste, or to carry with them to the world at large the wondrous name of the newest quack.

England, happy England, for which in this tropical land our hearts are yearning, is signally afflicted by every variety of specialism in this way; and cancer curers have for the past 80 years smitten the British public, first with admiration, and then with a very different feeling, so decidedly the reverse that we need scarcely express it.

To trace the history of these men; to investigate their remedies and to expose their ignorance, is the self constituted duty that our author has accepted. We cannot, we regret to add, follow him through all his performance of the task, but we shall sufficiently glance at the main points of it, to enable our readers, both *professional* and *general*, to estimate aright the value of the cures recently propounded by Pattison, Fell, Reed, Vries *(the black Doctor) et hoc genus omne.*

Mr. Wells took occasion, in July 1857, when the public

mind had been much excited on the subject of the treatment of cancer, to address to the pupils of his class (at the Grosvenor Place School of Medicine in London) a lecture devoted to the consideration of caustics and excision as remedial agents in this disease; and he further adverted to the most notorious cancer curers of past and present times. The present work is merely an expansion of the former lecture, which may be found in the *Medical Times* and *Gazette* of 11th July of the year alluded to.

He commences his lecture by detailing one or two cases which should open the eyes of those interested in the subject, and which fully illustrate the sort of cures that are met with in private practice.

He says (pp. 4—5):—

In the year 1853 I was sent for to see a gentleman well known in the higher ranks of London society. He had a malignant tumour beneath the angle of the left jaw, and his case is so excellent an example of the way in which people with cancer run about, first among the Surgeons and then to the cancer curers, that I will relate it at some length. This gentleman first complained of a sore in the inside of the left cheek. He fancied he had bitten it. Then it was thought that a decayed tooth had caused it, and the tooth was extracted. Then caustic was used. Still it did not get well, and Mr. Fergusson was consulted. He excised the diseased part; a good deal of bleeding followed, and styptics were used freely. Some time after swelling came on beneath the jaw, and Mr. Lawrence was consulted. He said the disease was malignant, advised attention to the general health, and a course of sarsaparilla. Then I was called in. The skin at that time was on the point of giving way. I employed congelation by Dr. Arnott's process. This did some temporary good. It gave relief to pain, and I felt pretty sure that it retarded the growth of the tumour. However, the patient was not content with that, and Dr. Marsden was sent for. He advised a very generous diet. Soon after this the skin gave way, and carrot poultices were used. Then came the turn of the cancer curers. Dr. Pattison was sent for, and had sense enough to see that he could do nothing, but he made the most of the case, of course, by saying that if he had been called in at first he should certainly have effected a cure. Then a German empiric was heard of, who was doing wonders somewhere on the Rhine, and he was written to. He offered to come over for five hundred pounds, and ultimately an arrangement was made to give him three hundred. He came, saw and conquered—not the disease, but the patient. He applied a very strong caustic one Monday; on the Tuesday it had destroyed the coats of a large artery, which gave way, and the patient bled to death in a very few minutes.

Every one who has seen much practice in town could tell such stories as these, but one I have heard Dr. Jenner relate is most striking. He was called one morning, seven or eight years ago, to see a lady who was said to have fainted. He found a lady dead in bed, and a cancer curer just about to reapply a dressing upon the breast of the dead woman. This person was so ignorant of medicine that he did not know she was dead; he was horror-struck when Dr. Jenner told him so, and had just before assured the husband that his wife was going on well, and would soon be cured. The quack was not punished. The husband and friends were ashamed of having been duped, and they kept quiet.

The concluding sentence of this passage shows why quacks are believed in. They are not exposed because their dupes value their own reputation for common sense more than the lives of those around them. Another cause is not less patent: they cling, during the lives of those so near and dear to them, to the hope that the empiric *may* be right, that life may yet be saved; and above all they dread the painful ordeal of the surgeon's knife. Again, a fictitious appearance of success is presented by *curers* of every grade. To one all things are cancer; to another fistula is always apparent; a third vouches for the existence of invariable ulcer oris uteri; and a syphilitic taint is in every case detected by those who practice in the *secret line*. Innocuous tumours are pronounced cancerous and cured: and to these and to all sufferers the knife-operation is depicted as agonizing, and the *special cure* as painless or nearly so.

Unsuccessful cases are ignored or denied, and they are not subsequently exposed for the reasons to which we have before alluded.

But to dwell on such topics would occupy our space too largely, and we pass on to notice the two great subjects of this little book, and though we do so briefly, we would earnestly desire that those who, for their patients or their friends, wish for a full detail of the practice of cancer curers, would read at length the able statement of which we can give little but an outline.

Two subjects are dealt with in Mr. Wells' lecture—first, the cure of cancer by *specifics*—second, that by strictly scientific treatment.

To the former of these we first direct attention. Early in the eighteenth century Plunket, an illiterate Irishman, practiced as a cancer curer, adopting as his sole remedy a compound of crowsfoot, dog fennel, sulphur and white arsenic.

Of these remedies the latter was known to the Greeks and Romans as a discutient and caustic (Vide Adam's Paulus Ægineta, vol. III., p. 54.); the irritant properties and the discutient action of ranunculus and its cognates were equally familiar, as we all know that ranunculus tammula (spearwort-crowsfoot) and helleborus nige, were recognised and employed on this account. (See as above, vol. III., p. 69, 107, &c.)

There was therefore nothing new in the poultice, or paste, of Plunket, as its essential ingredients were well known previously, and had been found productive of evils so great, that their use was only had recourse to with the greatest caution.

Lord Bolinbroke fell a victim to Plunket's paste, and it afterwards flourished under the patronage and title of a noble Lord. *Lord Arundel's Cancer Cure* was Plunket's paste, or at least arsenical powder with a wash of *Corrosive Sublimate.* Mr. Justamond tried this nostrum in its original and amended states, and arrived at just the same conclusions, as had been previously arrived at as regards arsenic as a caustic. A reference to his pamphlet (dated 80 years ago) proves that he first propounded two points in the treatment of cancer, upon which much stress has been laid as original parts of Dr. Fell's cure, viz., destruction of the cuticle, and incision into the eschar before its actual detachment. This was in 1780, and the cuticle was removed by nitrate of silver: the caustic powder applied to the tumor being one part antimony to two parts arsenic. Thus far therefore arsenic, a traditional remedy, had been falsely set forth as a new cure and a secret remedy, but the only real advance made was in its *mode of application*, and this by a Surgeon who openly tried the remedy, published the results, and condemned it as not offering advantages equivalent to the risk incurred by the patient.

Landolphi next proposed to use chloride of zinc, bromine, gold and antimony: and, borne onward by a tide of prosperity which never follows the legitimate practitioner, realised a splendid fortune. But when his *paste* was used under surgical observation in Vienna and Paris, it was reported as inferior to chloride of zinc. In the report of the Hospital Surgeons the chloride of bromine was stated to be inert, as to constitutional effects, and only valuable as a discutient; thus taking the place of ranunculus, and lunar caustic as used by Plunket and Justamond. The pain produced by this caustic (as by that of Dr. Fell), was excessive. Lan-

dolphi's success as a cancer doctor was considered as proved conclusively, when in January 1854 he was reported to have cured the Duchess of Anhalt Cothen of cancer of the breast; unhappily for both parties the disease returned, and the patient died in 1855.

He was similarly unsuccessful with other cases, and even among legitimate practitioners who gave his remedy a full trial, the eventual and unanimous verdict was against the remedy as a specific.

Thus Ireland and Naples had furnished us with cancer curers whose remedies were found to be illusory, and which were used, no doubt, to many tumors of an innocuous character. America next supplied two Physicians, who since 1855 have, in succession, held the public fancy until exposed—we allude to Dr. Pattison and Dr. Fell.

Not only is there a wonderful resemblance in the proceedings of these worthies, but they too, like their precursors in the same line, adopted old remedies with new names. Dr. Pattison took dried sulphate of zinc as his remedy, and Dr. Fell adopted the chloride together with some other, and it is believed inert, substances.

In speaking of Dr. Pattison's specific we may add, however, that he has not yet promulgated its composition, which is supposed to be as we have mentioned. We may here remark that we believe the credit of first *announcing* this remedy as an escharotic is due to Dr. Simpson of Edinburgh, to whose able paper on this subject we would direct attention. It may be found in the *Medical Times* and *Gazette*, vol. I., for 1857, pp. 55 and 78.

Not many days since, Dr. Pattison's book was placed in our hands by the friends of a gentleman suffering under cancer. Without entering upon it in detail we may merely say, that like other works of the kind, it is the "puff direct," and self laudation pure and simple.

As to the book and its reliability, let us be content with Mr. Wells' exposure of the one, and disproof of the other. He says (pp. 20 to 25.)—

"A report of one of these used to appear in the form of a declaration sworn before the Provost of Glasgow, that the patient was cured by Dr. Pattison, after having been regarded by Mr. Syme of Edinburgh as hopeless. Mr. Syme informs me that the patient was a small farmer, who had a sore at the corner of the nose. Mr. Syme applied the chloride of zinc to it, but the man went to Dr. Pattison, and so far from having been cured by him "died in great misery

after several journeys to London." Mr. Syme informs me that a case of cancer of the breast which had returned after operation, and which Dr. Pattison boasted he had cured, is not cured, but that the lady is dying; and that another lady, upon whom Mr. Syme declined to operate for cancer of the tongue, died under Dr. Pattison's care. These are cases which the public never hear of, but which really ought to be made known. In 1855 a book appeared, entitled "Cancer; its true Nature, Treatment, and Cure. Illustrated by Cases. By John Pattison, M.D., 31, Lower Grosvenor-street." Most of these cases are given so indefinitely—as "Mrs. H., from Essex," "Mrs. J., aged 54," "Miss ——, aged 27," "Mrs. A. of Hammersmith," "D. C. from Scotland," and so on, that it is impossible to find out how far the cures related are correct: but there is a clue to some of the cases, particularly to those treated at Glasgow; and I wrote to Dr. Macleod, a most able Surgeon of Glasgow, to ask him to make inquiries about them. Here is his reply :—

"The following is the result of the cases treated by Dr. Pattison in this neighbourhood, of which I have been able to find out the particulars :—

"1. David Wilson, nursery gardener, &c.—This was a case of cutaneous cancer of the cheek,—the sore being about the size of a sixpence. Dr. Laurie applied the actual cautery twice; after which it healed for a short time, and again broke out. Pattison treated him, in 1852, for six weeks, during most of which time he was put to great agony,—the caustic being applied, at one time, continuously for eight days. He was pressed to submit to it, in order to see 'whether a caustic which had been so effectual in America, would act in the same way in this country.' The sore healed up after this, and has remained well till lately, when the old lancinating pain has returned, the hardness (which had never left it) has increased, and the inner end of the cicatrix has begun again to ulcerate. The man himself says he is sure he is going to have a return of his disease, and acknowledges that 'the cure has entirely failed.'

"2. Miss M., of 28, Parson-street.—It is eight years since she first observed a small pimple on her right cheek, which remained long small and painless. It was hard, but quite superficial. About two years after its first appearance, it broke and "wept." It was many times healed by Dr. Ritchie, by simple means. Having again appeared, she put herself four years ago, under Dr. Pattison's care. It was then 'no larger than a herring-scale, and felt, when she bent down, as if it would drop out.' Dr. Laurie had seen her just before this, and had told her to have two decayed teeth drawn. This she did, but hearing immediately afterwards of Dr. Pattison, she did not wait to see the result of Dr. Laurie's recommendation, but put herself at once under the charge of Dr. P., who told her it was lupus. The sore had all along remained quite small and superficial—had not spread, and caused hardly any uneasiness. She

was in London, under Dr. P., for seven weeks, and was apparently cured. Caustics were very frequently applied, and she was told that 'a very large bad lump had been took away.' She came down to Glasgow, and in fifteen months afterwards she was as bad as ever. She returned to London and was seventeen weeks under Pattison who 'again took away a great mass of disease.' The sore caused by the caustic healed, and there has, up to this time, been no return. The cicatrix on the right cheek is as large as a florin, white and sunk. There is no hardness, or any breach of surface. Dr. Ritchie says that the sore was 'suspicious' when under his care, but he would not have pronounced it 'malignant.' It was very superficial; and the description given by the girl herself, that it was a 'weeping pimple,' seems the best which could be given of it.

"3. Mr. Lauder, foreman in a manufactory here, I can hear nothing of.

"4. Mr. C., auctioneer, was a case similar to that of David Wilson. He was twice operated on by Dr. Laurie, and on the re-appearance of the disease, fearing another operation, he went to Pattison. He was twice under this gentleman's care—once in 1853 for three weeks, and again in 1855 for two months. The disease, which was very limited, in a great measure, though never completely, disappeared after his first visit to London, but in a few months after, it again came back worse than ever. He was at that time put to so much pain, that 'he thought he would have died.' In 1855 he was again treated by Pattison: the disease knew no amendment, and it is now spreading, though slowly, and he is about to submit himself to more legitimate interference. This patient has dissuaded many others from going to Pattison.

"5. Miss P., of Glasgow, had been three times operated on with the knife. Had the disease—a cancer of the breast—temporarily removed by Pattison, in 1853. It returned in the spring of 1856, and she has been now eight months under Pattison's treatment, where she still remains, 'daily getting worse' (so say her friends).

"6. A sister of this lady's lately died under Pattison's care; but from what I can learn, she was in so advanced a stage of cancer of the tongue when he saw her, that her death by no proceeding could have been long delayed.

"7. Mr. R.—Lupus of the nose, said to have been treated by Mr. Lyon, of Glasgow. Mr. Lyon knows nothing of this case, nor can I hear anything of it.

"8. Mrs. W.—'Ulcer of the leg, of five years' standing; attended by Dr. Gairdner, of Glasgow, cured by Pattison.'

"This was a common varicose ulcer of the leg, for which Dr. Gairdner could not persuade the patient to lie up for a day. She put herself under Pattison for some months, in London, and followed all his instructions, of which rest was the chief. She came home well, and remained so for a time. The ulcer again appeared when she

became pregnant, and it is again nearly as bad as when she was under Pattison.

We next turn to Dr. Fell. This gentleman, after being permitted to test the virtues of his system at Middlesex Hospital, promulgated his views and his remedy. We have no desire to enter upon the painful subject of the advisability of permitting secret remedies to be tried at public hospitals. We believe that India could furnish an example of somewhat similar proceedings in the General Hospital at Calcutta, where Honiberger proposed to cure *cholera* by quassine ; and failed, as Fell did with cancer.

Dr. Fell's book, like Dr. Pattison's, admits no possibility of failure, and panders to the public with a tale of wondrous interest, *if true.* He thus writes :—

"When my attention was first attracted to the study and treatment of this disease, it naturally occurred to me that before success could be obtained, it would be necessary to find some active agent exerting a specific effect upon cancerous matter, and which would exert the same influence by absorption, destroying the tendency existing in many cases in the constitution for the reproduction of cancerous cells ; and which, taken at the same time internally, would destroy the cancerous diathesis. Many remedial agents were tried without producing the desired effect, and all efforts to cure the disease were for a long time unsuccessful, and apparently hopeless, until I heard of a root used by the North American Indians on the shores of Lake Superior, which the Indian traders told me was used by them with success in these affections. It is a perennial plant, known commonly among these Indians by the name of puccoon, but from the red, blood-like juice that exudes from it when cut or bruised, is called by botanists the Sanguinaria canadensis. It grows in great abundance in the wild forests and plains of the far West ; indeed, in early spring the ground in many parts is covered by its large white blossoms. Such a plant, with showy snow-white flowers, would naturally soon attract the attention of the savage ; but when he found that whenever this plant was injured or a leaf-stalk broken, it exuded a copious stream of a blood-like fluid, he immediately considered it as sacred, and a great medicine. And no doubt some poor squaw, suffering from this dreadful disease, was the first who applied it, after having tried all the simple herbarium of the uneducated savage without success, and then, in despair, applied the bruised bloody pulp of the white-flowering puccoon. This extraordinary plant, although unknown to civilised man as a remedy for cancer, has been long well known as a powerful emmenagogue and alterative, and, as such, has been admitted into the Pharmacopœia of the United States ; and it is a question well worth consideration to ascertain how far its connexion and power over the uterine functions

has to do with its influences in destroying the peculiar cancerous diathesis existing in most cases."

Dr. Fell's cure, however, practically, consisted in the use of chloride of zinc, and in a certain mode of applying it, which he thus describes :—

"Parallel scratches or shallow incisions were made along the charred skin, for the purpose of inserting into them strips of calico, smeared with the paste. These incisions varied in number, being usually made about half an inch apart, but sometimes there were not more than four in a breadth of five or six inches. They were carried along the whole length of the eschar, and to a depth somewhat short of the living tissues beneath. For the first two or three days they were seldom deep enough to lodge the strips of calico ; still even the scratches sufficed for the percolation of the remedy into the subjacent living parts. Each day the incisions were a little deepened, and fresh strips of anointed calico, or rolls of cotton wool covered with the paste, were inserted into them, until in the course of from two to seven weeks, the average time being about three weeks, the whole depth of the tumour was penetrated ; and then the use of the paste was discontinued, and the eschar left to separate."—pp. 16, 17.

We confess that, though little disposed to advocate Dr. Fell's cause, we were (until we saw Mr. Spencer Wells' pamphlet) disposed to give credit to him for originality in this procedure as an improvement on that of Justamond noticed before. But on referring to the *Medical Times and Gazette* for 17th October 1857, we find that it had been conclusively shown that even in this respect he was not original. We are unable to follow Mr. Wells in his cases of cancer treated by Dr. Fell, but we append the references he gives, and can only add that anything more painful than this record of cases, we have never read.

The case of Mrs. Gosse, contained in her Husband's Memorial of her,* is one in which our feelings are alternately of pity for the sufferer, and contempt of the ignorance and cruelty of the cancer curer. He promised a painless cure, —he inflicted such sufferings as make one's blood run cold to think of. He promised cure and said the disease was merely *local ;* until the patient was dying, and even then he proposed new operations to eradicate the disease which he then, for the first time, pronounced to be *constitutional.*

* A Memorial of the last days on Earth of Emily Gosse. By her Husband. Nisbett—London, 1857.

Dr. Tanner* adds another case scarcely less distressing, and equally discreditable to Dr. Fell.

Next arose M. Vries who, though stated to be from South America, was believed by many to have been at one time, an inhabitant of a town in this Presidency.†

We cannot follow his rise and fall in France, but simply append the sentence of the Court and the proceedings regarding him, as quoted in *Galignani's Messenger*. And in republishing this lengthy extract, we can only add the expression of our earnest desire that in England a similar severe punishment may overtake the quacks and imposters who fatten on the credulity of John Bull :—

"The accused stated his age to be 55, his profession that of a physician, and his birthplace Surinam. In reply to questions of the President, he stated that it was in 1834 that he had left his country, and that he had visited Holland, America, and England, to introduce foreign medicines. It was true that in England he had endeavoured to set up a new religion, had preached against the idolatry of Rome, and had proclaimed that he feared neither the poignards of the Jesuits nor the thunders of the Vatican ; but that affair was now ended, and he occupied himself no more with it. At London, his system of medicine had not succeeded, because there, as at Paris, he had been unfairly treated. He lost an 'enormous sum' at London. 'You came to Paris in 1853' said the President. 'What did you come for?' 'To introduce foreign medicine, and to propose means of replacing steam in locomotives.' 'You are, then, a universal genius?' 'Every physician is a chemist.' 'You took the name of the Black Doctor, though you are not what may be called black ; and you wrote to the President of the Academy of Medicine, a letter, in which you undertook to cure persons afflicted with cancer, dysentery, and dropsy. Pray, who made you a physician?' 'I, myself, sir,' answered the accused. 'But you represented that you were a physician of the University of Leyden?' 'Hippocrates had no diploma ; and if the Lord himself were to return to earth to cure men, the Faculty of Medicine would prosecute

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* *Medical Times and Gazette*, October 22nd 1859. This number of the periodical also contains another case which was reported as doing very well (according to Dr. Fell's statements), but who, though so reported by him in April died in June with a large open cancer at the site of the old cicatrix. It would be useless to dwell longer on the proceedings of this person as, even in India, we all remember the exposure of the falsity of his professions and promises. We may then leave him merely remarking that chloride of zinc (the real specific in his formula) was not new, and that its application caused such agony that one patient declared that "*nothing on Earth would ever induce her to undergo it again.*"

† We believe Vizagapatam has the honor of claiming this gentleman as one of her most "celebrated" sons.

him!' 'When you had gained a certain degree of notoriety, did you not obtain permission to exercise your system of curing cancer in the Hôpital St. Louis?' 'Yes; but when Dr. Bazin, of that Hospital, saw that I was likely to succeed, he would not let me continue.' 'We now arrive at an eventful period of your career. In 1858 you pretended that you cured M. Sax of cancer?' 'I believe that I did cure him.' 'In consequence of the notoriety which you gained, medical men deemed it right to ascertain whether or not you really had the means of curing cancer, and Dr. Velpeau introduced you to the Hôpital de la Charité?' 'Yes; and if I had been allowed to continue my system, I should have effected cures.' 'Seventeen persons afflicted with cancer were there placed in your hands, and you undertook to cure them in six months: but at the end of two months seven were dead?' 'Not one!' 'Dr. Velpeau and Dr. Fauvel affirm the contrary. The former analysed your remedies, and found in them nothing peculiar,—nothing that is not to be obtained everywhere. But as to your patients in the hospital, they are at this moment all dead, except two, and those two, are dying!' 'At the end of two months none were dead, and since then it is not I who have attended them!' 'On the demand of Dr. Velpeau you were excluded from the hospital, and then you caused puffs on your skill to be inserted in the newspapers, and had your portrait published. You always told the people who consulted you that you were certain to effect a cure?' '*The promise of a cure gives moral force to the patient.*' 'You always stipulated on being paid before you commenced operations, and you did not always adhere to the bargains you made. Thus, a Spanish lady came from her own country to consult you, and you undertook to cure her for 10,000f., of which 3,000f. were paid in advance. But after you had got this latter sum you learnt that the lady was rich, and you wrote to insist on having 40,000f. with 10,000f. down. She complied with your request, but she died!' 'I demanded payment from my patients according to their means.' [The President here mentioned several cases where the patients died after the pretended cure of Dr. Vriès.] Witnesses were then called. Several deposed that Vriès had professed to be able to cure members of their families affected with cancer, but that he had failed, in some cases the patients dying. M. Redot said that after the accused had treated his wife for some time, he (Redot) had asked him whether he thought he could effect a cure. 'Certainly!' said Vriès, and yet at that very moment the poor lady was dead! His (M. Redot's) servant was so exasperated at the man's presumption that she had called him an ass and a thief. In his case, however, defendant had restored the money which had been paid. M. Sax was then called, and his presence excited much interest. He said that he had been afflicted with such a terrible cancer in the lip, that Dr. Ricord had not only told him that an operation was necessary, but that it would most likely end fatally, and accordingly advised

him to put his worldly affairs in order. Nevertheless, in eight days Vriès had perfectly cured him, and what was more, had taken 2,000f. instead of 3,000., which had been promised. Several other witnesses were then called, and among them was Dr. Fauvel, who described what took place in the Hôpital de la Charité, and who declared that the defendant did not even know what a cancer was; also, the Director of the School of Pharmacy and some apothecaries, who deposed that the substances which the accused had pretended were remedies from unknown plants, and to which he had given fantastic names, were simply alum, sulphate of potass, opium, &c. The evidence for the prosecution having been closed, numerous witnesses were called on behalf of the accused, and they declared that he had cured them of complaints more or less grave; one of them, a workwoman, who had been in the Hôpital de la Charité, even said that he had cured her of cancer. At this stage of the proceedings, the further hearing of the case was adjourned for a week."

The case was finally decided on the 11th instant, and the following judgment was pronounced:—

"As regards the accusation of swindling,—

"Considering that it results from the investigation and pleading that Vriès, by assuming the false quality of doctor of the faculty of Leyden, while he is devoid of even the most elementary notions of medical science, came to France after vain attempts to impose upon public credulity in England; that, after having profusely distributed prospectuses which announced that he had received supernatural revelations, and, having thus acquired a notoriety favorable to the realization of his plans, he has, under the name of the 'Black Doctor,' announced by a great number of publications that he had discovered in the tropical regions an infallible antidote which he called 'the quinquina of cancer,' and also other specifics against asthma, dysentery, and against the most serious maladies that afflict the human species; that, having succeeded by these means in procuring patients, he treated them, by contract, for considerable sums of money, of which he required a portion before the treatment, either with the patients themselves or with their relations, holding out to them the chimerical hope of a complete cure, of which he energetically affirmed the certainty;

"Considering that it results from the evidence of medical men who were questioned that Vriès is in profound ignorance of the healing art; from that of chemists that the medicines he ordered them to prepare in great quantity were nearly all of a powerless and insignificant nature, and that thus he audaciously deceived the public by announcing and causing himself to be announced by his confidants as a regenerator of the medical science, and a benefactor of mankind;

"Considering that there is no swindling more dangerous, nor more deserving of the severity of justice than that which, speculating on hu-

man life, addresses itself either to the fears which the sufferings of death cause to the sick, or to the feelings of affection which animate their families, to obtain considerable pecuniary sacrifices by holding out to them the chimerical hope that the sums paid in advance would be restored to them in case of failure,—a restitution which was never made in any particular case, except one, when Vriès affirmed the cure of one of his patients who was dead ;

"Considering that by these means Vriès has in less than three years caused to be given to him sums of money of greater or lesser amount by various persons, and notably by Carriguiry, 10,000f. ; by Capelman, 7,666f. ; by Mignot, 3,000f. ; by Rougemont, 6,666f. ; by Chardin, 1,600f., &c. ;

"Considering especially, that by falsely persuading the widow Riffef that he was instructed by M. and Madame Buck to ask them to advance him on her account the sum of 1,000f., the price for the complete cure of their daughter, while she was not cured, and while her parents refused consequently to pay to Vriès an amount for which they did not hold themselves debtors, he procured from the said widow Riffef the above-mentioned sum, and thus swindled a portion of the fortune of another :

"As regards the prevention and illegal practice of medicine and pharmacy and the sale of secret remedies,—

"Considering that it is established that since less than three years Vriès has illegally practised medicine, with the circumstance that he assumed the title of doctor, to which he had no right ; that he likewise offended against the laws on pharmacy, by selling and distributing medicines without being provided with a chemist's diploma ; that at the same time he has prepared and distributed substances not inscribed in the codex, and having the character of secret remedies ;

"Considering, consequently, that Vriès has rendered himself guilty of the offences provided for by articles 35 and 36 of the law of the 19 Ventose, year XI., 6 of the ordonnance of the 25th of April 1777, 36 of the law of the 21 Gerumial, year XI., and 403 of the Penal Code ; For these reasons it sentences Vriès to 15 months, imprisonment and 500 fr. fine.

But a new aspirant to medical honors now arose ; hitherto illiterate Irishmen, astute Neapolitans, and our American cousins had been alone the cancer curers for England. Medicine had favored us with perverted votaries who, for money, violated her laws, and now the profession of the church stepped in to offer us the Rev. Hugh Reed, who we find holds the responsible, but we suppose, badly paid appointment of curate of St. Sepulchre's. This divine is the author of a pamphlet on other matters medical, and seems to be as fond of change in the scene of his duties as of

variety in the subjects of his philanthropy. He published in 1858:—

"Observations, with Proofs that Cholera and Small-Pox are both to be Prevented and Cured: An offering to the Public, by the Rev. H. Reed, late Incumbent of Lima, Savannah, Clarendon, Jamaica, and now Officiating Minister of St. Martin-in-the-Fields, London."

Mr. Reed acts on one good system, and that is, he asks *money down*. He offered to cure one case for 100 guineas to be paid at 25 guineas a week—the last instalment when the cure was completed. In another case he asked, £100 one-third in advance, one-third when the patient was better and one-third when he was well. These terms being declined, he offered to attend at a guinea a visit—but his services were not accepted.

These and other particulars we learn from Mr. Wells' work, and we quote his own words as best expressing the feelings with which we regard Mr. Reed:—

"It is quite clear, therefore, that notwithstanding the halo of respectability thrown over Mr. Reed by his association with the Church of England as a minister, we are fairly entitled to class him with those men who make use of secret remedies for their own emolument —remedies which they keep secret, callous to the feelings of thousands who are languishing under terrible diseases, instead of publishing them for the benefit of mankind. It has been well said of Mr. Reed by a writer in the *Lancet*, "Modesty does not restrain him, for he pretends to cure cholera, ovarian dropsy, phthisis, and cancer. Humanity does not urge him, for he keeps his remedies secret. Christian benevolence does not move him, for he cures for money." It would, perhaps, have been more correct to say, "he takes money for promising to cure incurable cases."

On investigation it appears that the remedies he uses are chlorine gas and mercury: with what effect we need not say.

Thus ends the story of the cancer curers, and we must, but briefly, record our sense of the ability with which Mr. Spencer Wells has exposed their doings.

The remainder of Mr. Wells' book is occupied with remarks on the medical treatment of cancer in his hands.

To this part of the subject we may return hereafter, but there is nothing of sufficient novelty to require us to pause now to consider a matter upon which we would desire to enter at length if at all. The work we have noticed is a clear, dispassionate appeal to common sense and professional experience: as such we accept it, and acknowledge the pleasure and information which the perusal of it is calculated to afford and which we have derived from it.

1.—*The Voyage of the "Fox" in the Arctic Seas.* By Capt. M'Clintock, R.N., LL.D., &c. London, 1860.
2.—*Man and Climate.* British and Foreign Medico-Chirurgical Review, No. LIII. January 1861.

There are probably few stations at which the contemplation of the icy desolation of the Arctic regions, of frozen seas and snow-covered mountains, and of barrenness and darkness on the face of nature, is less likely to call up associations of horror, than at Madras during the dog days. The very idea of an ice-covered land is, indeed, grateful and soothing to us at this season, as the idea of the snow in which he is by and bye to roll, must be to the Russian, while he is undergoing the steaming and suffocating processes in his heated vapour bath.

Partly for this reason, perhaps, we have taken up as the subject for a few remarks, Captain M'Clintock's narrative of the final and successful expedition of search for the records and relics of the lost expedition under Sir John Franklin. But this narrative may well claim the attention of every Englishman, in whatever quarter of the globe his lot may be cast; nor, we venture to say, will it ever lose its interest for young or old, while courage and constancy in the performance of duty, under circumstances of difficulty and danger, continue to be the proud characteristics of our race.

To us, as Medical men, and still more as Medical officers, all narratives of Arctic travel possess an especial interest. Very many of the diseases from which our soldiers and sailors suffer are attributable, directly or indirectly, to the effects of exposure to a temperature different from that to which they have been accustomed in their native land; and by such narratives we are enabled to fill up a blank in our knowledge of the effect of climate on the human frame, which it would be impossible for us to fill up by any other means.

Capt. M'Clintock's story is already familiar to every one; but the outlines of it may be briefly told. On the discovery of the first relics of the Franklin expedition by Dr. Rae, and of the course followed by the retreating crews, it became obvious that if the fate of the expedition was to be discovered at all, it could only be by a careful search of a comparatively limited area around, and to the north of, the mouth of Back's river; and many and persevering efforts were made by Lady Franklin, and also by numerous scientific men, with Sir R Murchison at their head, to induce

the English Government to send out a final expedition to make this search. It is only necessary to say that these efforts failed: and that, although Lord Palmerston was personally favorable to the expedition being sent, the sense of the Government, and, we may add, that of the country generally, was against it;—there being no longer any hope of saving life, and the other objects of the expedition being considered insufficient to justify the risk necessarily involved by it.

Lady Franklin then resolved to equip and send out another expedition from her own limited means, assisted by the contributions of friends and others interested in the cause; and the result of this determination was the purchase and equipment of the "Fox," a screw yacht of 177 tons, originally built for a very different purpose,—and the appointment of Capt. M'Clintock to the command, with Lieut. Hobson, R. N., and Capt. Allen Young, of the Mercantile Marine, as Officers under him, Dr. David Walker, as Surgeon and Naturalist, and Mr. Petersen, as Interpreter,—the crew of nineteen consisting of picked men, most of whom had served in one or other of the previous Arctic expeditions.

The feelings by which Capt. M'Clintock was actuated in accepting the command, and the spirit in which he set forth on his adventurous journey, are sufficiently indicated in the following extract:—

"On the 18th April, 1857, Lady Franklin did me the honor to offer me the command of the proposed expedition,—it was of course most cheerfully accepted. As a post of honor and of some difficulty, it possessed quite sufficient charms for a naval Officer who had already served in three consecutive expeditions, from 1848 to 1854. I was thoroughly conversant with all the details of this peculiar service: and I confess, moreover, that my whole heart was in her cause. How could I do otherwise than devote myself to save at least the record of faithful service, even unto death, of my brother officers and seamen? And being one of those by whose united efforts not only the Franklin search, but the geography of Arctic America, has been brought so nearly to completion, I could not willingly resign to posterity the honor of filling up even the small remaining blank upon our maps."

It was indeed an honorable and arduous enterprise, and worthily was it undertaken.

The "Fox" sailed from Aberdeen on the 1st July 1857,—reached Greenland without misadventure,—and, after the crew had received from the Danish settlers the usual hospi-

tality of these northern regions, pushed on for the "North water" of Baffin's Bay,—the intention being to proceed thence through Lancaster Sound, and to establish winter quarters as far to the westward, and as near to the locality to be searched as possible. But the season was unpropitious. A passage through the ice could neither be found nor forced. What men could do was done by Capt. M'Clintock and his crew; but all was done in vain; and, as if to make their disappointment more bitter, they were at length frozen up in the "pack" within a very few miles of the open water which they had been struggling so long to reach. The ensuing winter was, of course, a period of compulsory inactivity. Nothing could be done during it towards forwarding the objects of the expedition, beyond recording scientific observations, and breaking in Esquimaux dogs, and Capt. M'Clintock's chief care had to be given to the preservation of the health of his crew. For an account of the measures which he adopted for this purpose, we must refer our readers to the book itself. The result, we may state, was, that there was no serious impairment of the health of the men in general, and that the only death which took place during the winter was the result of an accidental injury. During the winter the ship drifted with the ice in which it was frozen up, the almost incredible distance of 1,194 geographical miles, the movement being due, in Capt. M'Clintock's opinion, to wind alone. It was at length liberated on the 25th April 1858, in lat. 63½° N. after having been 250 days in the "pack." The escape of the vessel, at last, through 22 miles of "pack" in violent motion, from a gale of wind of sufficient strength to raise waves 13½ feet in height, seems to have been little less than miraculous, and it was evidently so regarded by Capt. M'Clintock; but on the details of that escape we cannot dwell. On the 28th April the "Fox" was safely anchored at Holsteinborg, and the hospitality of the Danes was again extended to the officers and crew, and we may add, to the dogs, as we observe that these animals were made supremely happy by being landed near the carcases of four whales!

On the 8th May the "Fox" sailed again from Holsteinborg. In the middle of June it again entered Melvile Bay, and in the beginning of August, after many adventures in the ice, and not a few hair-breadth escapes from destruction, it at length entered Lancaster Sound. The supplies of coal, &c., were replenished from the stores left by former

expeditions at Beechy island, and the voyage was continued onward, in a southerly direction, through Peel Sound, till, at length, on the 18th August, an unbroken barrier of ice was found extending from shore to shore.

As the Strait continued to contract for 60 miles beyond this point, and as there was little chance of its becoming navigable during the short remainder of the season, Capt. M'Clintock at once retraced his steps through Barrow Strait to Lancaster Sound, and passing down Prince Regent's Inlet, steered for Bellot Strait, in lat. 72° N., between North Somerset and Boothia Felix. The depôt at Fort Leopold was visited, and such stores as were required were taken on board from it. That at Fury point was passed in a snow shower. On the 21st August Bellot Strait was reached; but five or six miles of close heavy pack rendered it impossible to pass through it to the open water which was seen on its western side. The tides, however, were found to rush furiously through this narrow strait, and hopes were long entertained that the barrier of ice would disperse and allow the voyage to be continued towards Victoria land. But these hopes were doomed to be disappointed. The strait was indeed passed, but an impassable barrier of ice was found beyond its western end; and, when it at length became evident that farther progress was impossible, the "Fox" was laid up for the winter in Port Kennedy, a safe and convenient creek at the eastern extremity of the strait, on its northern side.

During the autumn months, depôts of provisions were pushed as far as possible along the routes to be followed by the sledge parties in the spring. The ship was then made snug for the winter, and the ensuing season of cold and darkness passed over much as the preceding one had done, but with a greater loss of life. The chief, and only remaining, engineer was found dead in his cabin, on the morning of the 7th November, it was supposed from apoplexy, and the steward perished at a later period, apparently from the effect of the continued use of salt meat, in defiance of orders, and of indulgence in the spirituous liquors under his charge.

Christmas was kept, as before, "with a degree of loyalty "to the good old English custom at once spirited and re-"freshing." There was no want of cheerfulness, or indeed, of boisterous glee; and the good cheer laid out upon the "snow white tables" seems to have been of a description with which no fault could have been found in

any quarter of the globe. During this Christmas feast the temperature outside varied from 76° to 80° below the freezing point!

A few rein-deer, hares, foxes, and ptarmigan were killed during the winter, and the supply of fresh meat thus obtained proved a very valuable, as well as an acceptable addition to the rations of the men; but it would have fared badly with the party if they had had to trust to their guns and rifles alone for their sustenance. The excitement of the sport seems also to have been useful, by keeping up the men's spirits—occupying their time and thoughts—and keeping them in good humour. A sailor armed with a musket, says Capt. M'Clintock, is a very contented and happy sportsman, if not a very successful one. We can easily believe both the statement and the limitation; and, much as we like to see Jack enjoying himself ashore, we confess that we would rather be out of range of his musket when he goes sporting in such a fashion.

The preparations for sledge travelling having been completed in the beginning of 1859, Capt. M'Clintock started in February on a preliminary trip along the west coast of Boothia, to Cape Victoria, in the hope of meeting with some of the parties of Esquimaux, known to frequent that coast, and of obtaining information from them which might be turned to account in the search about to be commenced.

He was so far successful that on the 1st March he fell in with a party returning from a seal hunt on the ice, and obtained some relics of the lost expedition from them; but the only information which they thought proper to give him was that a vessel had been crushed in the ice some years previously, off the west coast of King William's island.

Several other preliminary journeys were made about the same time by the other officers of the expedition. In the beginning of April the different sledge parties started for the great search of the season,—those under Capt. M'Clintock and Lieut. Hobson to the south, to examine the mouth of Back's river and the coasts of King William's island, and, if need be, those of Victoria land;—and that under Capt. Young to the north, to examine the S. W. coast of N. Somerset, and both sides of the Prince of Wales island. Each party was provisioned for upwards of 80 days.

Capt. Young's journey was unflinchingly performed, in spite of obstacles and difficulties which would have discouraged most men; but it was barren of results, so far as the

main object of the search was concerned. He found no traces of the missing expedition.

Capt. M'Clintock and Lieut. Hobson proceeded together to Cape Victoria, and met there the party of Esquimaux who had been previously seen. From them they obtained a few more relics, and also the important information that, in addition to the ship which had been crushed by the ice, and had sunk off the west coast of King William's Island, a second ship had been driven ashore on that coast, and had been plundered by their countrymen. This information led to a slight modification of the plan of search previously decided on. The sledge parties separated at Cape Victoria, on the 28th April, Capt. M'Clintock proceeding along the east coast of King William's island to Montreal island in the mouth of Back's river, and from there along the south and west coasts of King William's island; and Lieut. Hobson proceeding direct to Cape Felix, and from there along the N. and W. coasts of King William's island; the idea of visiting Victoria land was given up. The remainder of the story is soon told. Capt. M'Clintock made no important discovery on the east coast, or at Montreal island, and he could find no natives in the neighbourhood of the latter. On the S. W. coast, however, a few miles to the south of Cape Herschell he found the skeleton of a man with shreds of European clothing still attached to it, and various little articles scattered near it. On Cape Herschell, the point at which the discoveries of the Franklin expedition joined those of former expeditions, and at which the discovery of the N. W. passage had been completed,—the most conspicuous point, moreover, in the S. W. coast of King William's island—the remains of Simpson's cairn were found still to exist, and it was confidently expected that a record would be found there; but, on a most careful search, nothing of the kind could be discovered. The cairn had been disturbed by Esquimaux, and if a record was left there by the retreating crews, as Capt. M'Clintock seems to think there must have been, it had been destroyed by these savages. About 12 miles north of Cape Herschell Capt. M'Clintock found a note from Lieut. Hobson acquainting him with the discovery of the long sought record of the Franklin expedition, beside the ruins of a cairn on the N. W. coast, and of a boat which had been abandoned in the line of retreat of the crews, 20 miles to the north of Cape Crozier.

The story of the Franklin expedition, as briefly told in

the record found, is well known. The "Erebus" and "Terror" had been beset off the coast of King William's island in September 1856; Sir John Franklin had died on the 11th June 1847; the ships had been abandoned on the 22nd April 1848; the loss by deaths up to that time had been 9 officers and 15 men; and the remainder of the crews, amounting to 105 souls, were to start for Back's river, on the 26th April.

Around the cairn where this record was found were scattered numerous articles, of which the retreating crews had evidently thought it necessary to disencumber themselves, although then but three days' journey from the ships, and among them mention is made of *four* heavy sets of boats cooking stores. Was that also the number of boats with which they commenced their retreat? Capt. M'Clintock states that the boat found by Lieut. Hobson was capable of containing from 20 to 30 men, or about *one-fourth* of the party which left the ships. That boat when found was turned *towards* the point where the ships had been abandoned, and it was distant from it about 65 miles. In addition to a *vast* quantity of clothing, several watches, a couple of guns, a little tea, 40 lbs. of chocolate, several silver spoons, and many other miscellaneous articles, it was found to contain two imperfect skeletons partly destroyed by wild animals. Several books were also found in it, but no journals or memoranda.

Other relics were found along the northern coast, but none of special interest, and, on the return of the various parties to the ship, preparations were immediately commenced for the return voyage to England. This, as every one knows, was successfully accomplished. The "Fox" left her moorings in Port Kennedy, with a westerly gale, on the 15th August, and on the evening of the 21st September, Capt. M'Clintock arrived in London, and announced the fate of the Franklin expedition.

Well had the fame of this adventurous exploit been earned by him and his crew, and worthily were the rewards bestowed, which marked the sense of the Admiralty and of the Government of the service which had been performed.

The story of the expedition is told by Capt. M'Clintock, in the narrative before us, in modest and manly terms, without any of the unnecessary minuteness of detail by which some former records of Arctic travel have been rendered almost wearisome, and without any attempt to keep

constantly before the reader the severity of the hardships undergone by himself and his crew, and the imminence of the dangers incurred by them. We could almost wish that he had entered more fully into the details of some of the scenes, by his conduct in which he won so fully the confidence of the officers under him ; but if he has erred in this respect, the error is unquestionably on the right side.

As to the fate of the crews of the "Erebus" and "Terror" Capt. M'Clintock seems to entertain no doubt that they persevered in their southward journey until they arrived at the first falls on Back's river, their numbers being rapidly thinned by deaths by the way, and that the few survivors died of starvation about that point. He states, indeed, that a party must have returned to the ships, and that it is matter of conjecture whether their object was to await the chances of another season there, or to replenish their supplies of food, &c., and to persevere in the attempt to retreat by Back's river ; but he evidently inclines to the latter supposition. From a careful consideration of all the circumstances, however, we have been led to form a different opinion. That a portion of the crews persisted in the attempt to retreat to the southward, and perished on the banks of Back's river, or on Montreal island, there cannot be any doubt ; but the strength of the retreating party, before they left King William's island, was stated by the Esquimaux, from whom Dr. Rae received the first tidings of them, to have been "about 40," and we cannot believe that so large a proportion of those who left the ships as two-thirds had perished at so early a period. To the Esquimaux story that they "fell down and died by the way" we do not attach any credit. Capt. M'Clintock informs us that the reason of his not finding more skeletons was that the march of the retreating crews must have been, like his own, on the ice, and that on the ensuing thaw the bodies of those who died must have sunk to the bottom. How then could these bodies have been found by the Esquimaux in the following winter, when they pretend to have seen them ?

From the number of articles of which the retreating crews divested themselves around the cairn where the record was found—only three marches from the ships—it is evident that they had discovered at that early period that their strength was much more exhausted than they had imagined. Every additional days journey must have added to their debility. As they advanced, the daily journeys

must have become shorter and shorter. The number of sick men requiring carriage must gradually have increased; and it is no extravagant supposition that long before they reached Montreal island the leaders may have discovered that escape in the manner proposed was impossible with so large a party so encumbered, that their provisions would be exhausted weeks before they could reach a point where any addition to them could be looked for from the chase, or from fishing,—and that the only chance of safety for any of the party was to send back at least half their number, including, of course, all sick and weakly men, to the ships, to await the chances of escape which the advancing season might bring, and to push on to Back's river with the remainder and the greater part of the provisions. That during the early part of the retreat, at all events, while a return to the ships was still feasible, the men were allowed to drop down by the way side, and die without assistance, and without any attempt being made to save them, we do not believe. Such a supposition would be injurious to the memory of the gallant officers in command, and of the medical officers in charge of the expedition. It cannot be true. The finding of *one* skeleton by Capt. M'Clintock, on the line of retreat, proves nothing. The unfortunate man who died there may have strayed from the main body and perished in the attempt to rejoin it, or, as is not improbable, he may have perished on the return march to the ships, and the difficulty of digging a grave may have been the cause of his not being buried. That a party did return to the ships seems certain. The position and contents of the boat discovered by Lieut. Hobson, and the admission of the Esquimaux that a body was found on board the ship which came ashore, leave no room for doubt on the subject. That the party returned to the ships to await the chances of another season, and not merely to carry away a fresh supply of provisions, seems also to be almost beyond doubt. Had the latter been their object, they would scarcely have dragged back the boat; and, even supposing that they had done so, why should it have been filled with what Capt. M'Clintock calls in one place a *vast*, and in another an *amazing* quantity of clothing? On such a journey they would surely have burdened themselves with as little extra weight as possible.

As to the strength of the party which returned to the ships, there are also some grounds on which we may form

a guess. We have already stated that there is some reason to believe that the original number of boats with which the crews left the ships was four. One, apparently, was found by the Esquimaux and destroyed on Montreal island; a second probably accompanied the party of which the relics were found by Anderson at the first fall on Back's river; a third was that found by Lieut. Hobson; and the fourth, we may suppose, was taken back by the returning party to the ships. The articles found in the boat discovered by Lieut. Hobson were all of an unessential character, and such as men in distress would readily leave behind them. Doubtless it was intended to return for them, and for the rescue of the unfortunate men whom debility, and perhaps the distance between the two boats when it became necessary to abandon one of them, may have rendered it necessary to leave behind; but the provisions, ammunition, &c., of the returning party must have been carried with them to the ships, and were probably taken on in the other boat. That the exhaustion produced by the return march to the ships rendered a return to the abandoned boat impossible, until all hope of rescuing the two men left in it had to be given up, is most probable; but it is not impossible that these men may have been dead when left, or that they may have been found to be dead when a party returned for their rescue, although, in the latter case, the watches, chocolate, &c., would scarcely have been left behind.

From a consideration of the whole of the circumstances, we think the probability is, that at least half the retreating party returned to the ships, a party of such strength would in all likelihood be accompanied by the second in command, and it is probable that the majority of those returning with him would belong to the crew of his own ship. This, of course, can only be a surmise, but it is rendered probable by the facts that the boat found is believed by Captain M'Clintock to have belonged to the "Erebus,"—that the empty pemmican tin was marked with the letter E,——and that most of the articles of plate, of which the ownership could be discovered, belonged to officers of that ship.

If this surmise is correct, the question at once arises, what then was the probable fate of Capt. Fitz James and the party under him which regained the ships? The answer we fear must still be very unsatisfactory, one of the vessels undoubtedly came ashore, and the other, Capt.

M'Clintock says, was seen by the Esquimaux to sink. If it were so, the vessel which sank was in all probability the "Erebus," and the survivors must have perished with it,—a fate far preferable indeed to that of their comrades on the bank of Back's river :—but Esquimaux reports are not greatly to be relied upon, and if the vessel disappeared, so as to be lost to them for purposes of plunder, it is not unlikely that they may have concluded that it must have sunk, and reported accordingly. It is within the bounds of *possibility*, therefore, that the vessel may at length have been liberated, and that the last records of the expedition may still be discovered on some other shore : but that any of the crews can have survived the winter of 1848-49 is, we believe, wholly impossible.

Great as were the results of the voyage of the "Fox," we believe that another expedition must visit these desolate but now classic regions, before the fate of the Franklin expedition can be considered as finally cleared up ; and that another expedition will do so, at some future time, we do not entertain the slightest doubt. The spirit of adventure is as strong among our countrymen now as it ever was, and we do not fear that a question, which has stirred the hearts of young and old among them, as that of the fate of the Franklin expedition has done, will be allowed to rest while it is possible for anything more to be done towards its elucidation.

Every one must rejoice that all doubt has been removed as to the fate of the gallant leader of the expedition ; and that his career was brought to a close while the prospects of the expedition were still "couleur de rose." The deathbed of the brave old man must have been cheered by the unexampled success which had hitherto attended his voyage, and still more by the hope that the vessels under his command would soon be set free by the advancing season, and that, on their arrival in England, at no very distant date, his memory would be honoured as that of the greatest of arctic navigators, and the discoverer of the long sought for N. W. passage. Far better that he should thus have perished than that he should have survived to see all hopes of escape gradually disappear, and to lead that retreating band, during the following year, along the desolate coast of King William's island, to their last resting place on the inhospitable shore of North America. As landsmen, we should have thought that an effort would have been made to

bury the remains of Sir John Franklin on shore, and to erect some monument, however rude, over them; but this does not appear to have been done; nor are we aware of the feelings of naval officers on such subjects.

It is impossible, we think, to read Capt. M'Clintock's narrative without being impressed with the idea that the statements of the Esquimaux as to the fate of the lost expedition are far from deserving implicit credit, and that the conduct of that people is liable to grave suspicion. The difference is remarkable between the readiness, and even eagerness with which the fullest possible information was given as to former expeditions and wrecks, and the difficulty which was experienced in procuring any information at all about Franklin's vessels and their crews. The absence of all mention of any communication with the crews or sledge parties, during the long period which intervened between the freezing in of the ships and their abandonment, is suspicious. So also are the robbing of Capt. M'Clintock's depôt, and the facility with which the mode of using the revolvers was discovered; the state of abject terror into which Capt. M'Clintock's appearance threw the inhabitants of the hut at Cape Mathison, near which such piles of flesh were found (a hut of which we cannot help regretting that a thorough examination was not made;)—the systematic destruction of the cairns and records, and the careful concealment of the many firearms which must have been obtained from the lost expedition, and which the value set upon the revolvers, and the readiness with which their use was discovered, show that they had learned how to use.

The Esquimaux have hitherto been supposed to be a harmless race, and they have generally been found friendly, but that, we believe, means nothing more than that they have generally been met with by parties who had nothing to fear from their hostility. We have no faith in the kindly feelings of savages when opposed to their cupidity, unless they are influenced at the same time by fear, or at all events by the respect with which power greater than their own never fails to impress them. Dr. Hayes mentions that the natives of the N. E. coast of Baffin's bay, among whom he spent some winter months, had planned his own murder and that of the whole of his party, when his men were separated and so exhausted as to be believed to be incapable of serious defence. The attempt was defeated or rather prevented in his case; but may not a similar attempt have been made

with better success in the case of the starved and exhausted men of the Franklin expedition, broken up as they probably were at last into small parties, to increase their chance of procuring sustenance?

The medical history of Capt. M'Clintock's expedition adds little to our knowledge of the effects of a protracted residence in the Arctic regions on the European constitution; but it confirms the experience of former expeditions as to these effects, and also as to the means by which they can best be obviated. Of 22 persons on board the "Fox," only three perished during the voyage, and none of the deaths were fairly attributable to the effects of climate,—but, towards the end of the second winter, the health of all seems to have been more or less affected, and several both of officers and men suffered from serious symptoms of scurvy,—these symptoms, as on former occasions, being developed, in most instances, by the hardships and fatigue of sledge travelling. No one perished, nor does any one seem to have suffered very seriously in health from the effects of cold alone. Capt. M'Clintock, however, seems to scorn to record the minor sufferings and discomfort which all must have endured from this cause, and it is only incidentally he tells us, that towards the end of the second winter the points of their fingers had become like *horn* from repeated frost bites.

That exposure to a temperature equal, or approaching, to that of frozen mercury, especially if the cold is accompanied by wind, is often followed by serious constitutional symptoms, as well as by the better known local lesions, is now an established fact; but it is obvious that the risk from mere cold, *on board ship*, is not very great, and that it can easily be guarded against by ordinary precautions as to food, clothing, &c. Exposure, in fact, can then be avoided, and if a sufficient quantity of food can be obtained, possessing the requisite qualities for generating animal heat, the normal temperature may be maintained in spite of the climate.

During sledge journeys, however, it is less easy to avoid exposure to extreme cold, and on reading Capt. M'Clintock's account of the effects of such exposure on both men and animals, as well as those of Dr. Kane and other Arctic travellers, we cannot help being struck with the similarity of such effects to those of exposure to extreme heat, as often witnessed of late years in this country. This similarity we

do not remember to have seen pointed out, but it is surely obvious enough. In either case, after a certain amount of exposure, men generally become apathetic and listless, and careless as to the result; and, in either, an almost unconquerable inclination to sleep is frequently observed,—sleep, if indulged in under such circumstances, generally terminating in coma. In either case, also, convulsions are of very frequent occurrence;—and, in the case of the unfortunate dogs, these seem to occur almost invariably if the temperature falls to a certain extent.

Pulmonary engorgement would seem, also, to occur in fatal cases from exposure to cold, as it does in so many cases of insolation; but on this point, in the absence of dissections, it is impossible to speak very confidently.

Such a degree of similarity in the symptoms would seem to indicate similarity in their mode of production, and we doubt not that they are produced much in the same way, and that, as the effect of the application of frozen mercury to the skin is the same as that of red hot iron, so, also, the local effects of exposure to atmospheres of extreme cold and of extreme heat, on the nervous periphery on the surface, and in the pulmonary mucous membrane, are much the same, and that, in either case, the ensuing symptoms are chiefly the result of reflex action, producing either paralysis or convulsions. We do not mean to ignore the effects of a direct heating or cooling of the blood; but of the nature of these effects we are still in a great measure ignorant. That the symptoms are not absolutely identical, is only what might be expected from the difference in the state of the patients at the time of their occurrence,—those who suffer from the effects of extreme cold being frequently in a scorbutic state, while in cases of insolation the blood is frequently loaded with impurities from the failure of the functions of the skin, and from imperfect depuration in the lungs, owing to the rarefaction of the air, &c.

The disease, however, from which there is the greatest risk during Arctic travel, is evidently scurvy, the occurrence of which, after a certain period, appears to be inevitable, unless the most careful prophylactic measures are taken. None of Dr. Kane's crew escaped it, and among the crew of the "Fox" several cases occurred in spite of every precaution.

That the continued use of improper food is the ordinary and most efficient cause of this disease in the Arctic regions as elsewhere, there cannot be any doubt; but it is

equally certain that the operation of that cause is assisted by several others, the tendency of each being to produce a depressive vitality. Our limits scarcely admit of our doing more than naming the chief among them.

One of the most efficient is probably the want of light during the long Arctic winter. Dr. Kane's party, from the high latitude in which they wintered, were exposed to this cause for a longer period, and in greater intensity than the crews of any other Arctic expedition have been; and they suffered from scurvy in a like proportion. The brick dust colour which he mentions that the blood of all his followers acquired was evidently due chiefly to this cause.

Protracted exposure to extreme cold must also have a depressing effect; and, although such exposure can generally be guarded against on board ship, the precautionary measures themselves involve risk of a very serious nature from another source. We allude to the protracted residence of the officers and crews, during the winter months, in a very confined space, and to the continued respiration by them, in consequence, of highly contaminated air. Capt. Young, in his paper in the *Cornhill Magazine* mentions this as the chief cause of the scorbutic symptoms on board the "Fox," and we also are inclined to assign a high degree of efficiency to it. Capt. M'Clintock mentions, incidentally, that his principal cabin, in which five persons were accommodated, was only 8 feet square! Allowing it to have been 8 feet also in height, which is probably far more than it really was, the cubic space to each person would only have been 102 feet! and this, too, while the favourite viands were seals' flesh and blubber, in quantity limited only by the supply available! and while, in consequence, the contaminating effect of respiration must have been much greater than usual! That sickness should take place under such circumstances is nothing wonderful. Very free ventilation, when the outside air is at the temperature of frozen mercury, is, of course, out of the question; but something might surely be done by blowing machines and an arrangement of pipes around the cooking stoves, to diminish the horrible impurity which must otherwise exist.

Mental depression, we believe, has also in many cases contributed not a little to the production of scurvy. It is no doubt also, frequently an *effect* of that disease, of which it is in many cases one of the most distressing symptoms; but that it often assists in the production of scorbutic symptoms,

we do not entertain the slightest doubt. The amount of scurvy in the various expeditions has generally borne an inverse ratio to the cheerfulness of the crews. During the long period of inactivity unavoidable during an Arctic winter, the thoughts of the men must frequently revert to the dangers which they have already surmounted, to those by which they are surrounded, and to the uncertainty of their ultimate escape; and such thoughts cannot have a very cheering or exhilarating effect even upon the bravest among them. We have already mentioned with commendation Captain M'Clintock's endeavours to keep up the spirits and cheerfulness of his crew, and to divert their thoughts from the circumstances by which they were surrounded, by finding employment and amusement for them. A sailor, fortunately, is easily amused, and we doubt not that the occasional interruptions of the serious business of the expedition, and of the monotony of the voyage by "risus, festivitates et facetiæ" produced an equally salutary effect on the bodily as on the mental health of the crew.

In the continued use of unsuitable food, however, as we have said, we believe that the chief cause of scurvy is to be found. We do not allude to the use of salt provisions, of which the scorbutic tendency is now well understood by the men themselves. In the Arctic regions, indeed, they seem to be almost poisonous. The assimilative powers of an Esquimaux dog are probably equal to those of any other animal, whether wild or domesticated. Few animal substances seem to come amiss to him. Whether it be his own harness, or the slipper of an officer sent after him for a very different purpose, it matters not. All are disposed of without hesitation and with a promptness which admits of no nice discrimination as to taste or other minor qualities. Nor does he seem to suffer any pangs of indigestion after free indulgence in such rebellious ingesta. But a full meal of salt meat is too much even for his assimilative powers, and, according to both M'Clintock and Kane, generally proves fatal to him in a few hours. The Esquimaux themselves, as a general rule, will not touch such food, even when suffering from the extremity of hunger;* and the only man of Capt. M'Clintock's party who perished with symptoms at all resembling those of scurvy, owed his death, in a great measure, to its unauthorised use.

But the total disuse of salt provisions will not ensure an

* Dr. Hayes mentions some exceptions to this rule.

exemption from scurvy, when the other conditions, favorable for its production, are present, unless the diet be of good quality, and sufficiently varied, and unless a sufficiency of vegetable food be included in it. Scurvy prevailed among the troops in the field during each of the last Kafir wars, although no salt provisions were ever issued to the men. It was due, we believe, chiefly to the want of vegetable food, and to the very inferior quality of the rations often supplied,—assisted by the effects of extreme and long continued fatigue, the deprivation of all ordinary comforts, and the weariness, often amounting almost to *tædium vitæ* inseparable from such inglorious operations against savages when long protracted. But so satisfied were we, during the last war, that it was also in part due to the *sameness* of the food supplied to the men,—to the perpetual repetition of stringy beef and mouldy biscuit, that we recommended that a ration of salt meat (of which a large quantity of very superior quality was lying in the Commissariat stores) should be issued once a week. Our recommendation was not acted on by the authorities, and we doubt not that it was considered by them to be a very absurd as well as a very unusual one ; but we are satisfied, nevertheless, that a good result would have followed its adoption. As it was, the scurvy was got rid of in no very long time, by the use of several varieties of wild vegetables or substitutes for vegetables,—of the acid and succulent leaves of several trees common in the African jungles,—and of malt liquor.

As to the description of diet suitable for men in the Arctic regions, there is not now much room for difference of opinion. The ample experience of many expeditions confirms the results of theory. The Esquimaux live on animal food alone, and consume it in incredible quantities, flavour being with them apparently a matter of entire indifference in comparison with fatness. Vegetable food they do not use at all. Dr. Kane is of opinion that a similar diet is equally suitable for Europeans. With a sufficiency of frozen walrus, he says, he would laugh at the scurvy. But all others are agreed that a certain proportion of vegetable food is necessary, and Capt. M'Clintock, we observe, sets great store on the daily use of lime juice.

A change in the description of food for which a desire is felt evidently takes place gradually, after the arrival of an expedition in the Arctic regions. During the first winter

the men seem to be satisfied with the ordinary rations of preserved meat, &c. But by the commencement of the second winter a slice of frozen walrus comes to be considered a delicacy, and, after that time, not only does the longing-for "blood meat," as it is somewhat expressively called, increase, but the quantity of it required to satisfy the appetite appears to increase in a like ratio. The appetite for preserved meat may not increase, but that for fresh meat, and especially for fat meat, undoubtedly does so, and the increase appears to be in proportion to the amount of exertion required from the men. That a quantity, however, is required equal, or nearly equal to that consumed by the Esquimaux when the supply is unlimited, we do not believe. The tendency to gorge themselves far beyond the requirements of nature, whenever an opportunity occurs of doing so, seems to be common to them and to most other savage tribes. We have seen Kafirs in the balmy climate of South Africa consume as much meat at a sitting as ever was consumed by Esquimaux within the Arctic circle.

The change in the feeling with which blubber is regarded as an article of food, from that of disgust to that of intense craving, is very remarkable, and it is evidently due to the want which is felt in gradually increasing intensity, of calorifiant food. Dr. Kane's account of the death of the seal, by the carcass of which the lives of his party were saved, on their retreat through Melvile bay, is interesting and instructive in this point of view. No thought was there of *sport* as the boat approached the unfortunate cetacean upon which the eyes of the exhausted and scurvy-stricken crew were cast with such wolfish eagerness. Even Petersen, in ordinary times a keen and indefatigable sportsman, and the slayer of many seals, was now so nervous and tremulous that he could scarcely steady his rifle sufficiently to fire the all-important shot; but his anxiety was not that of the sportsman, lest he should lose the satisfaction of killing a seal the more, but that of a man perishing for want of fresh meat, and with an abundant supply within his sight, and within his reach if his hand and eye remained true. And as the shot was fired, and the animal fell dead on the ice, the rush that was made upon it by the crew, and the haste with which its flesh was cut up into bleeding strips and devoured by them, showed how strong, and how little under the control of the will, the desire for this species of food had been.

To suit the Arctic palate not only must meat be fresh and fat, but it must also apparently be raw. The sacrifice of any of its juices by cooking is not willingly tolerated. But the necessity for using raw meat is not very obvious.

It is almost needless to refer to the *modus operandi* of oily substances in general, and particularly of blubber, in generating heat in the system by "internal combustion," and renewing the supply of "force." This has long ago been explained by Liebig and others. It would be curious, however, to enquire into the differences which exist between the fats of different animals, and which lead to differences in the estimation in which they are held by the natives of the Arctic regions. Why, for instance, should "bear" take so high a place in the culinary scale, and be described as the "strongest travel" of all? Flavour we should imagine must have little to do with the preference given, but we must confess that we are not qualified to prosecute this subject.

For the supply of such delicacies the rifle and the harpoon must of course be trusted to. Neither blubber nor bear's flesh can be provided in England. A fair substitute, however, we believe, might be found in cod liver oil. Something more than a soupçon of that substance, in all dishes in ordinary use, seems to be relished even by ladies in the Northern parts of Norway; and we doubt not that in the Arctic regions a full ration of it would soon come to be far more highly appreciated than the time-honoured ration of spirits. That the latter, indeed, is almost invariably hurtful in the Arctic regions, we do not entertain the slightest doubt; and we are glad to see that Capt. M'Clintock corroborates, incidentally, the opinion of Sir J. Ross on this subject, by expressing his satisfaction at the early expenditure of the supply on board the "Fox." A similar shortcoming in the supply of tea or coffee, or even of malt liquor, would, doubtless, have been regarded with very different feelings.

In the preceding remarks we have alluded to various topics discussed by the reviewer in the article on "Man and Climate," in the LIII. No. of the "British and Foreign Medico-Chirurgical Journal;" and to these we cannot return now. The conclusion at which he arrives is that neither in the Arctic nor in the Torrid Zone can colonization by Europeans be undertaken with any hope of success, and that, even in temperate latitudes, the inhabitants of one quarter of her globe, if transplanted to another, must gradually deteriorate,

and ultimately die out. To use his own words,—"Whether "it be the Rio Formosa, or the Rio Colorado, Ashantee or "Madras, whether it be Bengal or Jamaica, Cape Town or "Canada, Hispaniola, Chili, Cuba or Peru, no true Euro- "pean stock can *permanently colonize* the place."

We cannot enter into the ethnological questions raised by these sweeping assertions if followed up to their legitimate conclusions; but we must state our belief that the question as to the possibility of permanently colonizing temperate latitudes is, as yet, far from being settled negatively. The white man may deteriorate in America, but the deterioration has not proceeded far enough to prevent what the reviewer justly describes as "the most formidable Arctic journey ever made by white men," from being undertaken and accomplished by the Americans of Kane's party: and the deterioration of the European race in South Africa, if it has taken place, has, assuredly, been accompanied by physical improvement, or, at all events, by an increase in stature and strength. We defy the reviewer to point out in any quarter of the globe a race of men of equal height and weight with the Dutch Boers and the descendants of the French Huguenots in the northern districts of the Cape Colony. That colonists from any European nation will, in the course of a few generations, lose many of the peculiar characteristics of the nation from which they sprung and acquire others peculiar to the land of their birth, is probable; nor need it excite any surprise, when we consider the distinctive features of the various European members of the same family of nations. But that the magnificent Anglo-Saxon colonies in America, South Africa, and Australia, are destined to perish from the gradual deterioration of the race, we maintain that the history of the world does not give us the slightest reason to believe; nor have we so little faith in the destinies of our race, nor so poor an estimation of the objects of Providence in giving us the ends of the earth for an inheritance, as to entertain so humiliating a supposition.

The Surgical Diseases of Children. By J. COOPER FORSTER, F.R.C.S., M.B., University College, London, Assistant Surgeon to, and Lecturer on, Anatomy, at Guy's Hospital, and Surgeon to the Royal Infirmary for Children, &c., &c.—London: PARKER AND SON, 1860, 8vo., pp. 348.

IN the present age of Systems, Cyclopædias and Manuals promulgated by individual author, we turn with pleasure to Monographs treating of special subjects, and we feel that they form a more natural and facile topic for review than the comprehensive works to which we have just alluded. In the latter the author reviews, with greater or less favour, the numberless suggestions, opinions and theories that have been offered on as many different topics; and it is no novelty to find that his own share in such a work is that of simply commenting on the works of others. This is occasionally done with unnecessary severity, and sometimes the commentator indulges in remarks of little value to the general reader, because not the result of personal experience.

Upon the extent to which conscious and unconscious plagiarism occurs in such works, we need not dwell, but proceed at once to notice briefly the very able work before us, which claims at once the novelty and worth of entire originality and very high merit, for both its literary and professional deserts. Mr. Forster appears to have enjoyed very great opportunities of studying the diseases of children, the care of which belongs chiefly to the surgeon, for he informs us that more than 300 children (that is patients under puberty) are annually admitted into the surgical wards of Guy's Hospital. And at the Royal Infirmary for children, a very large number have for years come under his charge.

From the materials thus placed at his disposal, our author has drawn up this record of his experience, and has favored us with a work of which "the entire matter is original."

Being so, it does not of course assume the dignity of a "Complete Systematic Treatise upon the Surgical Diseases of Childhood," but it is given to us in a shape we much prefer, as the record of the experience of an observant and well-informed practitioner, who has had unusual opportunities of qualifying himself for affording sound practical information upon a branch of surgical science requiring much delicate tact, and of extreme importance.

In his preface Mr. Forster informs us that he has not dwelt at length upon such affections "as do not present any differ-

ence, either in character or treatment, from the same diseases in the adult." Thus injuries of the head, hernia, and diseases of the eye, are either omitted *in toto* or only slightly referred to. We would suggest that these omissions somewhat contradict the title of the work which does not appear to contemplate any such procedure.

We can only glance at the contents of the several chapters, which are arranged, chiefly, according to the system of *Regional Surgery.*

After a brief encomium upon Chloroform the author announces that he "never performs the slightest operation without using it, with the one exception of excising the tonsils." To freezing mixtures, for young children, he objects, as they cause hardly "less pain than that they are intended to mitigate." His preference of chloroform is based on the very few fatal results from its use. On this point we can only say that we saw a very close approach to a fatal result, in our own practice, where chloroform was administered during amputation of the arm of a child, 4½ years old: and in whom severe convulsions and (apparently) cerebral congestion occurred two hours after the operation had concluded. We are happy to be able to add that the child did not die. But we think that the possibility of the occurrence of similar effects should make us somewhat cautious as to how far we adopt Mr. Forster's precept of inducing anesthesia "in putting up fractures, and even in examining them, or diseased joints, or in any other painful manipulation for diagnostic purposes." The use of freezing mixtures is advocated in the case of children verging upon puberty, and the following directions are given for its use. We quote them as applicable to other classes of patients, and of use especially in the presidency towns of this country, in which ice is to be found in nearly every house. (p. 3.)

"The best mode of applying cold is to mix thoroughly together equal parts of ice broken into very small pieces, and of salt, and place them in a piece of very thin caouchouc sheeting. This should be gently drawn to and fro over the part for two or three minutes, until the skin begins to assume a whitish appearance. In this state, if the skin be incised, it cuts like a raw turnip and without the least sensation to the patient. Some little uneasiness attends the first application of the freezing mixture, and also its withdrawal. The latter may be somewhat relieved by making the withdrawal gradual. To avoid sloughing, care should be taken that the application be not continued too long."

Mr. Forster briefly alludes to the subject of *Nurses* and the value of their "careful and kindly attention;" he further presents us (p. 167) with a portrait of one whom the Physiognomist would pronounce as "born to be a Nurse." We confess that, though the years of our own boyhood concluded a long time ago, we should, we think, if ill, recover more rapidly if attended by *her*.

Cleanliness and ventilation are next briefly recommended, and of course Miss Florence Nightingale is quoted as an authority—we should rather have said as *the* authority. We are happy to find that Mr. Forster agrees in our strictures on the plan proposed by her, of leaving bed-room windows open at night.

We are unable to notice all the Surgical Diseases discussed by Mr. Forster, and shall confine our brief remarks and extracts to some subjects of unusual occurrence or special importance.

Under the subject of Diseases and Injuries of the Head, attention is drawn to the rarity of ill effects to children from falls, &c., and the very uncertain results which follow where severe injury *has* been received, are illustrated by cases between the age of three years and puberty.

In some of these death occurred apparently after comparatively slight injury, and recovery took place in some very unpromising cases. The consequent uncertainty as to prognosis is duly enforced, and is followed by allusion to the deceptive appearance yielded by effusion of blood under the scalp. This complication, which at all times embarrasses diagnosis, does so especially in the case of children. The treatment of this class of injuries may be briefly summed up as regards concussion, as follows:—A mercurial purge and cold to the head, either by cold water or crushed ice in a bladder. The use of the *elevator* even in doubtful cases of *compression*, and the cautions to be observed in the use of the trephine, are equally urged. We would direct attention to the following remarks as regards a point of diagnosis.

"A trickling of blood from the nose, accompanied with subconjunctival ecchymosis in one or both eyes, occurring immediately after the accident, is pathognomonic of fracture of the orbital plate of the frontal bone, and is therefore a symptom of the most serious import. But it often happens that free epistaxis occurring a few days after the accident, seems to give great relief to children suffering from symptoms of concussion. (p. 9.)

Mr. Forster has found *epistaxis*, among children, never fatal, and among other observations offers two explanations, as to the reason of this non-fatality generally, and of the existence of the disease in certain cases.

"Under excitement, the amount of blood in the brain is greatly increased, and it is possible that disastrous effects might result from this, if it were not for the free exit afforded by the various foramina of the skull, of which the most important is the foramen through which, *in children*, the blood passes into the nose. In after life, when the passions become more amenable to the reasoning powers, this foramen becomes closed. The peculiar construction of the schneiderian membrane affords a means for the ready transudation of, at all events, the more fluid portions of the blood. And this may be in part the reason why children suffer so little from the effects of this hæmorrhage—viz., that it is not strictly blood, but an altered and diluted fluid that escapes; coupled with the fact that the loss is from the veins, and not from the arteries.

"In some cases the tendency to epistaxis is hereditary; or it may, I think, be due to accidental occurrences depressing the mother's strength during pregnancy. I have met with a case in which one child in a family of three, had a strongly marked tendency to loss of blood, especially by the nose. There was no such tendency in the parents or their families, but the mother during the sixth month of pregnancy had met with a fall, occasioning her a considerable loss of blood." (p. 16—17.)

Strumous ulceration of the face should not, according to our author, be treated by escharotic applications, but simply by cold water dressings, pure air and good food, containing a good deal of milk. He further suggests the use of the following formula in obstinate cases.

R. Tinct. Cinchonæ.	℥ xv.	This is a dose for a child five years old.
„ Rhei	℥ vii.	
Liq. Hyd Bichlorid.	℥ x.	
Aq. Distill. ad.	ʒ i.	

We confess we should rely more upon cod liver oil and iron; and we are doubtful as to the propriety of the double use of bichloride of mercury in the following case. It will be observed that the drug is given internally *in solution* (the form most calculated to promote its absorption), and in a dose which we consider too large when the local application of yellow wash is a part of the treatment. We are induced to attach importance to this, as the abuse of mercury is considered by our author as one of the causes of

cancrum oris. The case of strumous ulceration alluded to is as follows (p. 23.)—

"H. M., aged nine years, was admitted into Guy's Hospital on 7th December, 1842. Ever since he was a year and a half old, he had been subject to attacks of superficial ulceration on various parts of his body. He has had ulceration of the face for about three years, previous to which time there had been a similar affection, first of the left, and then of the right shoulder. On admission, there was a patch of ulceration, of the character I have described, on the right side of the face, extending over the whole surface of the masseter muscle; on the right shoulder there was also a patch of ulceration, irregular in form, extending quite across the deltoid. The treatment consisted in applying a rag, dipped in yellow wash, to the parts affected, and the exhibition of one-twelfth of a grain of bichloride of mercury in sarsaparilla three times a day. On the 3rd of January, the lotion was discontinued, and water-dressing applied, and subsequently the iodide of iron was given; the lad went out well on the 16th of May."

If these observations are to be taken literally, the child must have taken $\frac{1}{12}$th of a grain of corrosive sublimate *for at least* 27 *days*, and 3 *times a day!*

Noma and *Cancrum Oris* are rightly regarded by our author as analogous diseases. Of the former he says nothing as referring to its importance in a medico-legal point of view. We would direct our readers' attention to the valuable observations of Mr. Wilde, on the case of Amos Greenwood, as recorded in the 27th Volume of the "Dublin Quarterly Journal," pp. 57 *et seq.* From these and many similar observations, elsewhere recorded, we find that this disease has been mistaken for gangrene supervening upon forcible rape on young children. A point too important, we consider, to have been passed over *sub silentio* in a work like the present.

As to *Noma* and *Cancrum Oris*, we should feel disposed to consider them as analogous, if not identical, diseases—produced as result of constitutional debility rather than as due to local violence or irritation. Our author alludes to another cause as regards the latter disease—namely, the too free use of "mercurial powders, a portion of which is very frequently retained in the mouth of young children." This he regards as the exciting cause of the disease, "in the larger proportion of cases." (p. 24.)

In this view we can by no means agree, and we place before our readers the grounds of our opinion as originally

formed and since confirmed in our own practice. Dr. James Duncan, in the 28th vol. of the 1st Series of the "Dublin Medical Journal" thus discusses the question of the mercurial origin of the disease in question. (page 5.)

"The condition of the gums, presenting a certain superficial resemblance to the usual effect of the administration of mercury on these organs, might easily lead to serious mistakes as to the real cause of this affection; and involve the attending practitioner in undeserved reproach. In the present instances I have no hesitation in saying that the disease originated in a constitutional condition, and not at all in the use of that mineral: an opinion in which I am sure the members of the section will agree when I mention that some of these children had been for months in the house previous to the attack, and had taken no medicine of any kind for a long period before; and that while I have always been in the habit of using mercurial preparations with the freedom that seemed necessary for the proper management of those important inflammations to which children are liable, I have never had an opportunity of witnessing the disease till the commencement of the last winter. It is true that in both cases we observe ulceration of the gums, fœtor of the breath, and increased secretion of saliva, but these symptoms differ in a remarkable manner in the idiopathic and mercurial gingivitis, as will be fully explained hereafter. Mercury, so far from having a tendency to produce the disease, I have found can be safely exhibited while it exists, and exerts a beneficial influence in checking its advance."

Mr. Forster, moreover, seems to consider that constitutional symptoms do not *always* precede the appearance of Cancrum Oris, although he admits the frequency with which it follows illnesses of a depressing character. *We* consider the disease as, in nine cases out of ten, the direct result of such depression whether existing *sole* or as the result of exanthematous fevers. Our own personal experience of the disease is confined to four cases—three occurring in an Irish Hospital among pauper patients, and one in the Monegar Choultry Hospital in this city. The latter was one of a family of children landed almost dying from starvation and exposure on board a wrecked emigrant ship. In none of these cases had mercury been given, and in all of them it was preceded by diarrhœa. In no case were any teeth lost.

Mr. Forster's work contains a good description of the disease, and only errs in attempting to establish a distinction between it and *gangrenous stomatitis:* we regard them as diseases varying only in degree, and could adduce ample authorities in favor of our views.

There is one point to which, before passing from the subject, we desire to allude, and that is the almost invariability with which Cancrum Oris *first* attacks the *right side* of the face. The *four* cases we ourselves saw—the *two* mentioned by Mr. Forster, and all others of which we have been able to find a record, seem unanimous on this point.

On this subject, in which we require confirmation, we can only suggest that the circulation on the right side in children may be less active than on the left, owing to the different points from which the common carotids are given off, and the connection between the disease and deficient circulation seems to derive some support from the fact, that in one of Dr. Duncan's cases (op. cit. p. 16) one of the earliest symptoms causing alarm, in a case of measles, was *coldness* of the limbs which was next day followed by Gangrena Pudendi.

We must pass over, with merely a general commendation of them, the chapters relating the Larynx, Pharynx and Œsophagus, which, together with *Diseases of the Rectum*, and *Affections of the Trunk*, are fully entered upon.

Two subjects of great importance are discussed in chapters X. and XIV., the latter treating of nævus, and the former of calculus in the bladder, and we only regret that we are prevented by want of space, from entering fully upon these two subjects. As to the latter affection we may say that the author's essay (for it is little less,) should be read by every one interested in the subject, as it brings before us all that is essential to be known, and does so in a clear and practical manner, deserving of the highest praise. As to Mr. Allerton's operation and its suitability for children, the opinion of our author is "that there are no particular grounds for performing an operation of this kind, when the usual oblique incision is as successful in its results in children as any serious operation can be." (p. 169.) As to the *causes of death* after it, he enumerates *hæmorrhage*, as of rare occurrence; *Peritonitis*, seldom seen, and if occurring to be treated by opium; *Infiltration of urine*, a very fatal complication, and to be met only by cleanliness and good food and tonics; and *Visceral disease*, which occasionally takes the form of anasarca, and is "fatal."

The foregoing chapter and that on Nævus are remarkably well written, and the last named subject is expanded so as to include the researches of others besides the author. In this we think he has done well, and should a 2nd Edition

be demanded, we think a slight extension of the chapters (or paragraphs) on *Cancrum Oris*, *Noma*, and some other subjects might still further increase the value of this very excellent book.

Although we have differed with our author on certain points, yet we regard his book as one highly calculated to fill a void long felt in surgical literature, and we cordially recommend it to favorable notice.

In addition to its literary merit it is exceedingly well got up, and beautifully illustrated.

Anatomy—Descriptive and Surgical. By HENRY GRAY, F.R.S., Fellow of the Royal College of Surgeons, and Lecturer on Anatomy at St. George's Hospital, Medical School. The Drawings by H. V. CARTER, M.D., late Demonstrator of Anatomy at St. George's Hospital. Second Edition—London: PARKER AND SON, 1860, Royal 8vo., pp. 784.

THIS very handsome volume has recently reached us, and is an ample confirmation of the remarks which we have already recorded at a former page, as to the style of composition adopted in modern Anatomical works, in the foremost ranks of which it is entitled to stand.

We gladly observe that the work is eminently suited both for the student and practitioner, and having examined the book with great care, we find that the account of the plan of the work as set forth in the first edition, is steadily adhered to in this one also. Thus—

"The course, relations, and Surgical Anatomy of each artery are described, together with the anatomy of the regions containing the arteries more especially involved in surgical operations. This part of the work is illustrated by twenty-eight engravings."

In one particular this work is of considerable value to the Surgeon, as we find in it full and accurate account of certain *regions* which are usually the seat of operations. Although the book generally is arranged on the plan of considering each *system* of structures separately, yet the anatomy of the perinæum, of the ischio-rectal region, and of femoral and inguinal herniæ, is described at the end of the work; the region of the neck, the axilla, the bend of the elbow, Scarpa's triangle, and the popliteal space, in the section on

the arteries, the laryngo-tracheal region, with the anatomy of the trachea and larynx. The regions are illustrated by many engravings. Certain details have also been given, and more than one diagram regarding the microscopical anatomy of some of the tissues, and of the various organs, has also been introduced.

A new edition has now been produced—a fact amply sufficient in itself to confirm the previously favorable notices which this book received on its first appearance. From Mr. Gray's preface we learn that the text has not only been thoroughly revised, but a great part of it has been altogether re-written—a wise resolution undoubtedly on his part, as it is calculated to remove the charge of plagiarism, which we believe was somewhat unjustly urged against him from more than one source. We have always felt it to be a most arduous task to introduce anything that could be styled perfectly original in a subject so completely hackneyed as a dissertation on Anatomy; and with every wish to avoid appropriating to ourselves what may be the genuine property of another, the mind of a writer will be always prone to adopt unconsciously the tone and character of that phraseology which may have made a more than ordinary impression on the intellectual faculties very many years previously. We have repeatedly lapsed into this error ourselves, and it was only when our imaginary new idea appeared in the garb of print that we became aware of the delinquency of which we had been guilty, and longed for some opportunity which might enable us to atone for our unconscious transgression.

Taking into consideration the numerous critical reviews which this work evoked on its first appearance in the literary world, it would be invidious on our part to enter into a minute detail on what even the most cursory glance must show to be a most decided improvement on the preceding edition. That it should have been exhausted in so short a time is, in our opinion, the highest tribute of praise that could possibly be bestowed upon it, for after all, in almost every instance, the student world is the best judge of merit in its own peculiar walk of life, and by its fiat a class book must in the end always stand or fall. In casting our eye over the illustrations we were most forcibly struck not only with their artistic beauty, but likewise with the accuracy and faithfulness with which the most minute objects connected with the subject in hand have been pourtrayed. The com-

plications which might have been naturally expected, and the difficulty of delineating correctly a vast series of parts in a space so contracted, would naturally lead a person to suppose that it would be almost impossible to avoid a certain amount of confusion, or at least a crowding together of so many names as to create a degree of ambiguity that might prove fatal to the proper understanding of the part in question. No such result as this has, however, taken place, and it speaks most highly for the masterly manner in which Dr. H. V. Carter has performed his contingent of the allotted task, that each illustration with its mass of contents speaks as forcibly to the feeling of the practised Anatomist as the dissected type of nature, of which it professes to be the truthful representation.

When the work of Luther Holden first made its appearance, we little imagined that a spirit bold enough would be found, to extend, as Gray has done, the idea which he was the first to propagate. While Holden confined himself simply to a description of the bones, imprinting on their engraved outline the names by which their several processes were distinguished, Mr. Gray seized with ready grasp the example thus pointed out, and taking a more comprehensive course, impressed in vivid characters, and after the same model, the mechanism by which those bones, the passive organs of locomotion, were regulated in their actions, and so nurtured as to be able to perform their functions with the greatest efficiency. Spaces too of the most vital importance to the surgeon or physician have been as carefully transferred to page after page, so that with little trouble the busy practitioner whose knowledge of anatomy may have become obscured by want of practice, may now resuscitate his former anatomical lore and be ready for any emergency. It is to this class of individuals and not to the student alone that this work will ultimately tend to be of the most incalculable advantage, and we feel satisfied that the library of the medical man will soon be considered incomplete in which a copy of this work does not exist.

As the work is not a new one (being only a second Edition) we can only recommend it as of very great value, especially in this country where such heavy professional responsibilities are imposed upon practising surgeons.

A Synopsis of the Principles and Practice of Medicine, Compiled from the writings of various Authors, for the use of the Students of the Junior Department of the Madras Medical College, with a Copious Glossary and Index. By J. R. BARROW and G. DAVIS—Madras: GANTZ BROTHERS, 1861. 8vo. pp. 97, xxiii.

WE notice this little work because we think it does great credit to its authors who are tutors in the Junior Department of the Madras Medical College. In a modest preface they announce that they undertook the compilation "with a view of assisting the Native student in acquiring a tolerably fair knowledge of the principles and practice of Medicine, and thereby to prepare him the better to understand and appreciate larger works;—it was also intended to provide him with a cheap and ready manual for College use."

Keeping in view the object of the work we feel bound to say that the authors have generally acquitted themselves very well. They have endeavoured to bring to the notice of the student the principal points connected with such diseases only as are most commonly met with in Hospital practice in this country. We incline to the opinion that in some instances clearness of definition has been lost by condensation having been carried beyond a judicious limit,—witness Typhus Fever, page 7. Some of the chapters are written with great care, and we presume that in many instances the descriptions given are derived from personal observation. The Chapter on Beriberi, page 72, is an example of this.

The preface informs us that "the *objects* of treatment, rather than the remedies employed, have been more noticed, as giving sounder views of the *principles* which should guide the practitioner in the cure of disease." And we think the compilers are quite right. But it will be found that they not only give the *indications*, but point out briefly how these are to be carried out. They have done well in omitting all prescriptions from their work, for the students are instructed in the method of using medicines in the class of Materia Medica and Therapeutics; and it is obviously of great importance, especially when dealing with Natives, to do everything in one's power to impress upon the students how intimately connected are the different branches of study which they are required to master. We have ourselves had ample evidence that Messrs. Barrow and Davis,

in their class rooms, lose no opportunity of showing the dependance of the various studies the one upon the other.

There is a want of arrangement in this little book which the compilers freely admit in their preface, attributing it to the difficulty of selecting a nosological system free from objection. We are very indisposed to be hypercritical, but, whilst giving the authors all credit for their performance, and fully acknowledging the existence of the difficulty to which they allude, we most decidedly object to their division of fevers. They make five varieties of fever—1st, Intermittent; 2nd, Remittent; 3rd, Continued; 4th, Typhus; 5th, Exanthematous. We object to Typhus being put as a separate variety instead of being placed under the head of Continued Fever. When we come to the varietes of continued fever we find *a* Common continued or Ephemeral, *b* Ardent or Inflammatory, *c* Typhoid, *d* Hectic. Surely there is a mistake in this division. If the object of the authors is to shew that there is a wide distinction between Typhus and Typhoid this is not the way to do it. Variety *d* instead of being Hectic should have been Typhus, and Hectic should have been considered under a separate head. We object further to the synonym of Hectic—no matter from what authority it may have been derived—viz., 28 days fever. Hectic may be of much shorter, but it is generally of much longer, duration. Further the term *rigors* is scarcely applicable to any but the *first* incursion of hectic; *chilliness* would have been the more correct term to apply to the subsequent daily paroxysms. Again, there is no mention of the eruption which occurs in both typhus and typhoid fever, the distinctive characters of which afford a means of diagnosing between the two diseases in the early stages. The "black spots" mentioned in the text, as occurring in typhoid, are petechiæ, and have nothing to do with the rose and mulberry rashes to which we allude.

We are very anxious to acknowledge the merits of our authors and to offer them every encouragement; they must not therefore deem us adverse critics for having pointed out what we consider errors in, and omissions from, their little work. We heartily hope that a new edition of the Synopsis will soon be required, and we would urge upon them the propriety of carefully perusing the papers of Dr. Jenner, upon Fever, in the 33rd Volume of the "Medico-Chirurgical Transactions" and Dr. Alex. Tweedie's Lumleian Lectures on Continued Fever, published in the "Lancet" for 1859.

In the latter they will find a more correct and scientific division than that which the synopsis contains. We would further suggest to the compilers, that they might readily accept the Government new nosological tables as the basis of arrangement in such a work as that they have produced. It must certainly be to the advantage of the student to have the system he learns in the class room thoroughly accord with that to which he must necessarily confine himself in hospital practice.

The Synopsis concludes with a very good chapter on Vaccination, and we agree with the writers on every point except the opinion contained in the last sentence, "Small-pox after vaccination is very commonly met with." We would use the word *often*, or, in preference, *sometimes*, instead of *very commonly*, for we hold that, if small-pox is *very commonly* met with after vaccination, there is something radically wrong either about the lymph used, or about the operator. If a true vaccine vesicle has been produced and has run through its regular stages, an after occurrence of small-pox, though not impossible, should be quite an exception.

There is a Glossary appended to the work which is certain to be of use to Native students, provided they are made to study it; for, we believe, they have a peculiar propensity to seize upon, fix in their memories, and often use, hard names without attaching any definite meaning to them.

In conclusion we may mention that the compilers of the Synopsis have obtained favorable opinions of the utility of their work from the Principal and the Professor of Medicine of the Madras Medical College; and that they have been fortunate, in their publisher, who by a judicious use of types of different characters has rendered reference a very easy matter. We cannot but congratulate the compilers both upon the idea of the book, and the manner in which it is carried out, and we trust it will be so well appreciated that they will soon have an opportunity of considering whether it will be worth their while to accept our friendly criticism and act upon our hints.

Reports upon Epidemic Fever of a Contagious type, in some of the Jails of the North West Provinces. (Printed Selection from the Records of the Government of the N. W. P.) Roorkee—Thomason College Press : 1861.

THE papers now before us were lately submitted to Government by Mr. S. Clark, Inspector General of Prisons in the N. W. Provinces, and consist of reports from the Medical Superintendents of the Agra, Meerut, Allahabad, Benares, and Ghazeepore jails, on an epidemic of fever which prevailed in 1860, not only in the jails, but throughout the length and breadth of the districts in question. We are glad to see that the local Government has thought proper to publish for general information a record of this pestilence. It is not for us to say how many visitations of a similar character have been left altogether unregistered, or if noticed at all so little importance has been attached to the record, that no use has been made of the facts noted. Had the documents relating to fever epidemics in India during the past century been carefully collated and published for general information, we feel convinced that men of such sound judgment and information as Annesley, Martin, and Moorhead, although personally inexperienced in them, would not have denied the existence of fevers of a contagious type.

The papers before us are badly printed, and sent out in a most unattractive form. Beyond their official circulation in Bengal and the N. W. Provinces, we apprehend that very few persons will ever see or read them. It is therefore most gratifying to us to find that Dr. W. Walker, Superintendent of the Agra jail, has, in the May number of the *Edinburgh Medical Journal*, presented to the Medical profession, a very interesting account of the origin and progress of one of the most destructive pestilences, which has of late years visited this country. In the few remarks we shall have to offer, reference will be made chiefly to the official, and non-official reports by Dr. Walker.

A very interesting subject of enquiry would be the actual condition of the population of the N. W. Provinces now, as compared with a period antecedent to the mutiny and rebellion in 1857-58. Unfortunately the statistics of our population in this country are so imperfect, that nothing beyond the merest speculation, as to the gradual depopulation of extensive tracts of country, can be advanced with any prospect of probability.

We can point out the losses from premature death, and preventable disease, but we are not in a position to state how far these losses are balanced by natural increase, or influx of population from more favored localities. We believe that had a census of these provinces been carefully conducted in 1851, and again in the present year, it would have shown some very startling results. Let us briefly consider the sanitary condition of the population during the last ten years, with the view of forming some definite conclusions on this subject. Dr. Walker tells us that epidemic cholera prevailed severely in 1851, and again in 1856, throughout the district. The last visitation was probably one of the most fatal that ever swept over these provinces. Before the population could have recovered from the effects of this deadly scourge, mutiny and rebellion stalked through the land, and for the space of two years, devastated the country of the most vigorous of its adult male population. Scarcely had peace and order been restored, when epidemic fever of a contagious type spread itself throughout the country, proving particularly fatal in small villages and hamlets, in some instances decimating the inhabitants, and in not a few, destroying a much larger proportion. The failure of the rains in 1860 has been followed by wide-spread famine, and again epidemic pestilence treads in the track which gaunt famine has marked out for it.

Here, in the short space of ten years, we have seen in progress some of those causes, which in former years, converted fertile fields into barren wastes, and populous cities into desolated tracts, such as we now and again meet within this country, and which bear evidence of a former period of prosperity and magnificence. We cannot but conclude that the population of these Provinces must have suffered in no ordinary degree during the period we have briefly sketched, and that a census at the present time would show so great a diminution in the numbers of the productive classes, as to awaken the Government to a clear sense of its duties and responsibilities in devising measures for the introduction of those principles of sanitation, now acknowledged and practised in all civilized communities.

We observe that Dr. Walker speaks of the late epidemic in the N. W. Provinces as "a type of fever such as has never been met with in an epidemic form in this country." In this statement we consider he has erred. Whoever will take the trouble to read the late Dr. Lyell's paper in Vol. II of

the *Indian Annals of Medical Science*, on the epidemic fever which prevailed in the Yusufzie district in 1853, will find that the prominent symptoms of the disease were precisely those which have been recorded by Dr. Walker and other gentlemen in the report before us. Indeed Dr. J. C. Bow, Superintendent of the Allahabad Central Prison, admits the identity of the most striking symptoms presented in the typical cases of the late epidemic, with Dr. Lyell's description of the Yusufzie fever in 1853.

Mr. Clark, Inspector General of Prisons, in his introductory report, alludes to an epidemic of fever which swept over Rohilcund in 1836-37, and the mortality from which is said to have been "something awful" He observes :—

"The prisoners in the Bareilly jail suffered severely. The Civil Surgeon, Native Doctors and every one employed in the Hospital caught the disease, according to the account given me, from coming in contact with the affected ; the Burkundazes of the guard, and in fact every one connected with the jail, suffered the same fate ; which goes a long way to show that the disease must have been infectious, and so far at least, bears some resemblance to the late epidemic."

The records in the office of the Principal Inspector General, Medical Department, Calcutta, could probably throw some light on the nature of this fever, if referred to. We do not remember ever meeting with any published account of it.

In the Madras Presidency, contagious fevers have from time to time attracted the notice of medical men and the Civil authorities. One of these outbreaks, which occurred in the year 1810, is thus alluded to in the "Medical topography of the Southern Division of the Madras Presidency." It prevailed chiefly in the collectorates of Madura, Dindigul, Coimbatore and Tinnevelly, and in one year it was reported to have destroyed 106,000 persons, or somewhat more than five and a half per cent. of the entire population.

"A malignant epidemic fever raged in the year 1810, in the Southern provinces, occasioning great mortality, to such an extent indeed, that Dindigul was of necessity abandoned as a military station, and not re-occupied until the latter end of 1813. To investigate the causes of this fatal malady, a committee of medical officers was appointed in 1811 and the result of whose inquiries was submitted to Government and afterwards published. About the middle of 1812 the ravages of the fever abated considerably, and shortly after disappeared altogether. In the year 1816 the fever again returned, and it would appear with greater violence than before."

In 1833 and 1834, the Dindigul district was again ravaged by a severe and fatal type of fever. From a careful examination of the report of Messrs. Ainslie, Smith and Christy, the medical officers who were ordered by Government to inquire into the causes of the epidemic of 1810 and its peculiarities, and of the able commentary of the Medical Board thereon, we have no hesitation in recording our opinion that the type of fever was very similar to that recently observed in the Yusufzie, and North West Provinces.*

The Budaghers, a tribe of mountaineers residing on the plateau of the Neilgherry Hills, at an average elevation of 6,000 feet above the sea level, have been known to suffer on various occasions most severely from contagious fever. Not many years since we heard of whole villages of these people losing from one-fourth to one-half of their inhabitants from what appears to have been malignant typhus.

We have adduced we think sufficient evidence to show that epidemic fever of a contagious character is by no means a new disease in India, and enough to warrant us in thinking Dr. Walker to be in error in stating the late epidemic in the N. W. P. to be singular in its characteristics. As we have before observed the recorded histories of these epidemics are very difficult to obtain. The circumstances

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* It is but fair to remark that the Committee did not consider the fever *contagious*, although they adduced facts sufficient to convince any one, at the present day, that it must have been so. So strong was the impression made on the Members of the Medical Board of the period, that in forwarding the report to Government, with their comments, they pointedly alluded to the evidence of the contagious nature of the epidemic in the following terms :—

"In countries without the tropics there would have been no hesitation in "attributing infection to an epidemic spreading as the one in the Southern "Provinces has done, it is only in the Torrid Zone, that such a cause is doubt-"ful."

In going over the report of the Committee we notice that all the observations of the authors appear to have been made with reference to their preconceived theories regarding the nature of malarious poisons. They offered opinions, not on what they saw, but upon what they considered would harmonize with the views of the leading authorities of the day, regarding the diffusion of epidemic diseases.

The Medical Board of the year 1812 was not to be led away by any sophistries, of this nature, and in reporting to Government on the subject declared that in averting the progress of the epidemic, the safest plan was "to assume a certain influence from contagion" in reference to the measures recommended for the improvement of the public health. These measures appear to have been eminently enlightened and judicious in their nature, and although we have not space to quote them, we may remark that, although suggested half a century ago, they would not discredit Sanitarians of the present day, who we think are a little too fond of insinuating that our forefathers paid no attention to what is now termed "preventive medicine."

attending them attract attention for a time, and are soon forgotten when the pestilence has passed away. As an instance of this we may mention that the lengthy, but unsatisfactory, report by Messrs. Ainslie, Smith and Christy, which was published by the Madras Government, many years ago, is now nowhere to be found, except as MSS. amongst the records of the Principal Inspector General's and Chief Secretary's offices.

Dr. Walker shows, we think, very clearly that the peculiar fever which he describes was first observed in the neighbourhood of Saugor in Central India about July 1859. It did not affect the native troops or military police to any extent, and from Dr. Barclay's report on H. M.'s 43rd L. I., we infer that it did not spread to the European forces. Dr. Rice, the Civil Surgeon of Saugor, states that for upwards of a month every third person attacked in the bazaar died, and that many of the filthy villages, for which the neighbourhood was notorious, "lost half their population." From Saugor Dr. Walker traces the progress of the epidemic east-wards towards the banks of the Ganges, and to the north through the range of country lying between the Ganges and the Jumna, and then proceeds to give the result of his own observations amongst the body of prisoners incarcerated in the large central jail of Agra. About the beginning of March 1860 his attention was directed to the large number of admissions under the head of Fever. The contagious nature of the malady was soon attested, by those mixing much with the sick, as native doctors, sweepers, &c., contracting the disease and suffering very much in proportion to the degree in which they had been brought into contact with the sufferers. Arrangements were made to relieve the crowded state of the jail hospital, and a standing camp capable of accommodating 1,500 men was established on a high piece of ground about two miles from the station.

The men transferred to it however did not enjoy any immunity from the fever, and the site of the camp was changed by removing to another eligible spot. Here the men remained until the 7th April, when the exposure to heat appearing to do more harm than good, they were removed back to their old quarters in the jail. In consultation with the local medical authorities Dr. Walker determined to transfer gangs of convicts to other gaols, and about 650 were disposed of in this manner. The virulence of the epidemic did not abate until the month of June. "It gradually and in-

sensibly disappeared," probably from finding no constitutions suitable to prey upon.

Dr. Walker enters at some length into the question of the predisposing causes, and attempts to explain why prisoners should suffer more severely than the free population. The dietary of prisoners is compared with that of the people outside; the former he considers, except in the matter of *variety*, to be equal if not superior to that of the free population. He asks the question, why is an epidemic so much more violent in our jails than elsewhere?

We are by no means prepared to acknowledge that it is so. In the Agra jail, which accommodates 3,000 prisoners in a space of less than 35 acres, and the atmosphere of which space, notwithstanding the most perfect arrangements in regard to ventilation, drainage and general cleanliness must be more or less contaminated by the exhalations from 3,000 pairs of lungs and a like number of cutaneous surfaces, we have no doubt, that the inmates *do* suffer generally more than the population outside. But in smaller jails we have often observed that the prisoners enjoy an immunity from epidemics which prove very destructive to the free population. The Civil Surgeon of Ghazeepore indeed, gives as a reason for not removing the prisoners to some suitable spot outside the jail, that the epidemic was raging with tenfold greater severity in the town than in the jail.

We quite agree with Dr. Walker in thinking that when men have to pass a long period of their existence, in confinement, it is not so many cubic feet of air they require as the frequent renewal of it; we endorse very cordially his remark,

"We are only too apt to apply the tape line, and measure out a certain number of cubic feet of space, as capable of supplying a human being with air to fill his lungs and keep him in health." Forgetting that if the space is not constantly supplied with untainted air, a depraved standard of health must necessarily, sooner or later, ensue. With the evidence before us of the very fatal nature of the epidemic amongst the free population, we are not prepared to admit that the dietary, or the lowered tone of health which usually obtains amongst prisoners, or the vitiated jail atmosphere, has predisposed them to this particular malady. Granting the evils likely to arise from these causes, we have no doubt that the hygienic condition of the prisoners, as a whole, was better than that of the people outside existing amidst the antiquated

filth of their wretched villages. This view of the case is borne out by Mr. Sapte, the Magistrate of Meerut, who attributes the virulence of the epidemic in the free population, "in a great measure to the excessive filth allowed to accumulate in their houses and narrow lanes," and says "I have been trying to stir the people up, to keep their manure at such a distance from their houses, that they may not be within the influence of its offensive odour; but their habits are so filthy, it is difficult to make them adopt any measures so opposed to their long established customs and ideas."

The more prominent symptoms of this fever, may be briefly enumerated here, but those who wish to peruse the minuter details, should refer to Dr. Walker's paper in the *Edinburgh Medical Journal.* The attack generally commenced with a feeling of *malaise* and early muscular depression, and in most cases, a shivering fit; headache was often present, and, in the plethoric, flushed face, and suffusion of the eyes; pain in the loins was a constant symptom; skin always hot, and dry; pulse full and rapid, varying from 100 to 130; tongue generally coated with dry, white fur; edges and tip becoming bright red; vomiting not unfrequent in the earlier stages; bowels generally constipated, but a mild purgative would often bring on uncontrollable diarrhœa. As the disease progresses, muscular depression becomes more marked, and soon the functions of the brain are impaired. The patient lies dosing with closed eyelids, but not asleep, and shows great unwillingness to be disturbed. About the fifth day he gets rapidly worse; the pulse becomes weaker and more rapid; muscular depression increases; sordes collect about the teeth and gums; the tongue is dry and baked; the fur browns and cracks; the patient swallows with difficulty; low muttering delirium follows, he becomes insensible to external objects, and death by coma, soon closes the scene.

In the milder cases, recovering from the first symptoms, *relapses* were of frequent occurrence. In fact so frequently did they occur, that the epidemic may be characterised as a *relapsing typhus.* The same tendency was observed by Dr. Lyell in the Yusufzie fever of 1853, proving beyond a question the identity of the two epidemics. Dr. Walker shows that the termination of the relapse was frequently by Nature making an effort to throw off the blood poison in profuse discharges from the bowels, first of offensive fœcal matters, and later, of slime and blood, or in some cases pure

blood. These cases generally terminated in chronic dysentery, which destroyed the patients.

During the progress of the epidemic, visceral complications were not unfrequent, but these appear to have varied according to seasonal changes. Thus, when the atmospheric vicissitudes were great and the thermometer ranging 36 degrees in the 24 hours, congestion of the lungs and low pneumonia were common ; as the mean temperature increased, brain complications were the most serious in their frequency and fatality. Later still, in the progress of the epidemic, symptoms of congestion of the abdominal organs, especially of the liver, and intestinal mucous membrane, appeared to be the most prominent.

With regard to the true nature of the disease, we are not disposed to regard it as identical, with either typhus or typhoid fevers, as generally observed in colder climates. It does indeed bear a very close resemblance to the epidemic fever which prevailed in Scotland in 1833-34, as described by Alison and Wardell. The absence of ulceration of the ileum in the victims of that epidemic, and in the fatal cases occurring under Dr. Walker's care, is a strong point of similarity. So too are the critical sweatings, the tendency to relapse, and we may add the rapid progress of the symptoms, tending to a crisis never later than the seventh day. That the fever was of a contagious character there is every proof, and contrary to the generally received opinion as to the influence of temperature upon the peculiar poison of contagious fevers, it appeared to spread with the greatest rapidity and virulence in the *hottest* season of the year.

Dr. Walker shows that the *sweepers* suffered in the largest proportion of all, and that their mortality was as high as 30·5 per cent. to treated, while the general average mortality from all classes in the Agra jail was 14·7 per cent. These men were engaged in removing night soil from the privies, and often in cleaning the hospital wards, where they were much exposed to the exhalations enamating from the morbid discharges of patients. All the native doctors contracted the fever, as did most of the hospital attendants, who were specially entertained to look after the sick. Of 324 men of this class 221 or 68·2 per cent. took the fever, and of those attacked 25·3 per cent. died.

Dr. Walker estimates the period of incubation as from 15 to 19 days. He arrived at this conclusion from observing the

time which the new hospital attendants generally remained at their work before falling sick, and in a detachment of apparently healthy men relieved from attendance on the sick, and transferred to a separate camp outside the jail, the men began to be attacked from 6 to 18 days after their removal from the focus of infection.

As to the general statistics of fever in the Agra jail, it appears that out of a strength of 2,282 men, 2,024 cases of fever were admitted into hospital during the five months from February to June inclusive, and of this number 299 terminated fatally, the ratio of admissions and deaths from it being 86·6, and 14·7 per cent. respectively.

We subjoin below Dr. Walker's summary of the results of the *post-mortem* examinations of 104 of the fatal cases. It speaks well for his professional zeal and industry, that so many autopsies were held at a period when the demands on his time, in the care and treatment of so many sick, were numerous and pressing, and at a season of the year when such examinations must have been attended with more than ordinary risk and difficulty. The value of the history of the Epidemic is very much enhanced by the careful pathological observations thus made.

"Post-Mortem Appearances.—The post-mortem appearances in all the fatal cases examined had one common characteristic, that of great congestion of almost all the internal viscera. To appreciate this, it is necessary only to glance at the analysis of the examinations of 104 bodies, which I made with great care, and all within six hours after death. I examined the head in 58 of those cases, and found the brain healthy in 12, much congested in 32, having serous effusions in considerable quantity in 6, and apoplectic effusions in 8. In the last the blood was in all the cases effused under the pia mater, and spread over the cerebral convolutions in a thin layer. In 5 cases I found the lungs healthy; in 61 they were congested; in 32 much engorged; and in 6 one, or part of one lung was hepatized. The liver was healthy in only 3 cases; in 63 it was dark and engorged with blood, being at the same time often enlarged; in 37 cases it was soft, and of some shade of yellow in color; in 1 case it was small and hard. The gall-bladder was empty in 32 cases, full in 70, and engorged in only 2. The spleen was health in 66 cases, enlarged and engorged in 28, small and hard in 10. The kidneys were normal in 53 cases, highly congested in 31, and otherwise diseased and degenerated in 20. The mucous membrane of the colon was congested in 37 cases, and shewed ulceration in some parts of its course in 28; in the others it was healthy. In only 23 out of the 104 cases was a general jaundice-

tinge observable, and only in 8 of these, was it noticed in the conjunctivæ before death. The deductions from these observations resolve themselves into the following;—congestions of the internal viscera were the characteristic pathological features of the disease. Whether we are to regard the appearances in the head as due to a true encephalitis, and the engorgements of the lungs and liver to pneumonia and hepatitis respectively, remains an open question. Cases terminated fatally, where I could detect no morbid appearances sufficient to account for death : others I examined, where the lesion of one important organ was quite sufficient to account for all the symptoms, and the fatal result ; but between these two extremes lay the great mass of the mortality, where the length of the patient's struggle against the disease, was the measure of the morbid conditions, induced by the fever poison, in several vital organs, simultaneously."

With reference to the *sequelæ* of the fever, in those who had the good fortune to survive the primary and secondary attacks, dysentery and diarrhœa were the most common and fatal. In some cases a tendency to phthisis, was manifested ; in others, swellings of the parotid glands, amentia, rheumatism, neuralgia, and œdema of the lower extremities supervened, and helped to prolong the period of convalescence.

All the medical officers concerned in the treatment of those attacked by this formidable pestilence are agreed as to the uselessness of quinine in cutting short the febrile symptoms. Dr. Walker states it to be "positively injurious, "until convalescence commenced, when it became invalu- "able as a powerful tonic, and agent in preventing the "occurrence of a relapse." Mercurialism does not appear to have been at all successful, and the same may be said of Graves' combination of tartar emetic and laudanum, and of most other remedies.

The liberal use of stimulants appears to have been absolutely necessary in most of the cases.

Some of the medical officers speak favorably of depletion, either by venesection and cupping, or leeches, in the early stages, and of the advantages derived from cold affusion when the morbid heat and dryness of the skin were excessive, and coupled with a full, bounding pulse.

In the treatment of an uncomplicated case of fever, it is evident that remedial measures, beyond the judicious use of nutritious food and stimulants, to support vital power, were not very satisfactory, or decided in their operation. Complications as they arose had to be met by those measures calcu-

lated to subdue them, but with regard to the morbid phenomena as a whole, it must be humbly acknowledged that medicine was almost powerless for the eradication of the blood poison.

We would call attention particularly to the manifest failure of our great anti-periodic remedy, in fevers of this class. There is an opinion abroad, to which very many able practitioners subscribe, that quinine given as a prophylatic, would reduce the mortality of our European army from fevers to a very insignificant item. Elaborate calculations have been entered into with the view of showing the large gain to Government, in a pecuniary sense, which would result by so using quinine, based on the supposition that so many valuable lives would be saved annually. We believe such calculations to be utterly worthless, and for this reason, that the class of fevers which generally prove fatal, to Europeans—in this Presidency at least—are uncontrolled by anti-periodics. Drs. Kirk and Livingstone have shown, we think conclusively, that the *habitual* use of quinine as a prophylactic gives no immunity from the operations of malarious poisons. The treatment of typhoid and typhus fevers in temperate climates by large doses of quinine has altogether failed, and the experience gained in the late epidemic in the North West Provinces, amply confirms the view, that fevers induced by an animal poison, and which are communicable from one individual to another, cannot be "cut short," by any mode of treatment with which we are at present acquainted.

It would be somewhat beyond our province here to speculate on the late epidemic, and the present famine in the ill-fated North West, as cause and effect. We have evidence that for many months, a deadly fever ravaged the homesteads of the rural population, that this must have had a serious effect in the progress of cultivation, supposing the seasons to have been favorable to agricultural operations, there cannot be the slightest doubt. Still we want accurate information on many important points before we could be in a position to give an opinion on the subject, which is one demanding the consideration alike of the statesman, the political economist, the sanitary reformer, and the statist.

Medical Hints adapted to the European Constitution in India, with Observations on the most Ordinary forms of Diseases therein, and plain directions for their Treatment. By GEORGE YEATES HUNTER, Esq., Bombay Medical Service.

MR. HUNTER'S little work is intended for the use of rather a numerous class of persons in this country, who at some period of their lives find themselves far away from medical aid, and entirely dependent upon the domestic medicine chest, and such general knowledge of the doses and uses of drugs as they have been able to acquire from the perusal of our time-honored manuals of domestic medicine, or failing the possession of such knowledge, who place implicit faith in the universal virtues of the thousand and one quack remedies which are daily advertised, for the especial benefit of dabblers in physic. The aim and object of this modest and unpretending publication are given in the Introduction, from which we quote the following :—

"The following little book is principally intended for the use of those who, by a residence in the jungle or otherwise, are, for a considerable portion of the year, out of the reach of medical and surgical aid ; to such it is hoped it will prove serviceable by enabling them to act for themselves in time of need, and also to bestow the benefit of their information upon those under their protection.

"It is not the intention of the writer to enter minutely into the vast subject of the science of medicine, but merely to note the prominent symptoms of the diseases most prevalent in India, together with the simplest treatment of them, and as no technical language is employed, little difficulty is presented to a reader of moderate capacity.

"To facilitate reference the various subjects are alphabetically arranged, and, in addition to the strictly medical observations, a few remarks on Diet and general Hygeine find a place."

We are bound to confess that Mr. Hunter has executed the task assigned to himself with credit. It is no easy thing to write down to the level of a general public when medical subjects are concerned ; but the avoidance of all technical language has been attended to throughout, the suggestions for treatment are generally plain and practical, and we can cordially recommend the little work, (which we observe is procurable in Madras from Messrs. Gantz Brothers) as a safe companion to the domestic medicine chest, for the use of those who may be deprived of medical aid.

Should a new Edition be called for, we would suggest to the author, that the indications for treatment, in some instances might be simplified, and the list of medicines at the end might, we think, be reduced somewhat.

The Physiology of Common Life. By GEORGE HENRY LEWES, Author of "Sea-side Studies," "Life of Goethe," &c., &c. In two volumes. W. BLACKWOOD & SONS: Edinburgh and London, 1859-60, post 8vo., pp. 940.

WE own to a considerable amount of curiosity whilst cutting the leaves of these volumes. We have the habit, and we presume it is common to every reviewer, of noting, in the first instance, the name of the author of the work we purpose criticizing, and, should the name not be "unknown to fame," of recalling to our recollection all that is publicly known of the individual, so that we may have some data upon which to found an opinion of his capacity of dealing with the subject upon which he descants. We confess then that we were anxious to see how the intricate subject of Physiology would be treated by one whose antecedents could not but be present to the memory. We remember Mr. Lewes as a contributor, of great ability, to many of the leading periodicals; especially as a writer in *Blackwood*, in which Magazine he published in 1856-57 a series of papers called "Sea-side Studies" (which studies, we presume, gave him the first stimulus to the pursuit of Physiology); and the papers in the first volume of the *Cornhill Magazine* entitled "Studies in Animal Life," and those in the second volume named "Physiological Riddles," are attributed to him. We are fully aware of the great versatility of his talents as proved by the various departments of literature which have engaged his attention, in some of which he has produced works of acknowledged worth.

Among Mr. Lewes's more pretentious publications we may refer to the "Biographical History of Philosophy," which appeared in 1845, in which his leaning to the views of Comte as developed in the "Philosophie Positive," was very evident; and to the "Exposition of the Principles of Comte's Philosophy," which naturally followed in 1853. In the interval between the appearance of these two works we find that our author was by no means idle or unpro-

ductive. In 1846 he published a book upon the Spanish Drama "Lope de Voga and Calderon." In 1847 "Ranthorpe, a Tale." In 1848 "Blanche, Rose and Violet," a regular three volume novel. In 1859 "The Life of Maximillian Robespierre, with extracts from his unpublished correspondence." In 1850 "The Noble Heart, a Tragedy." (acted with success.) And in 1855 "The Life and Works of Goethe, with sketches of his age and contemporaries, from published and unpublished sources." Besides all this, he was, from 1849 to 1854, the literary Editor of the *Leader*, which newspaper he started in conjunction with Mr. Thornton.

Such, then, had been the varied nature of the literary pursuits of the man who now appears upon the stage as an entirely new expositor of the laws of Life. Of course we have nothing to do, in this article, with the merits of the different works we have alluded to; the recognition of their existence is sufficient for us.

Before undertaking any thing like an analysis of the contents of these volumes we must prepare the reader for a certain amount of dogmatic assertion which is almost peculiar to Mr. Lewes. He repeats an experiment, originated by some previous observer, and draws his own conclusions, and has the happy facility of ignoring the existence of any approach to correctness in the conclusions which other observers have derived from the identical experiments, if such conclusions do not at once accord with those which he chooses to endorse. In general terms the work may be characterized as an onslaught upon some of the most generally received doctrines of Physiology, which will be particularized as we proceed to a notice of them in detail.

The literary merit of the volumes is considerable; the language is clear and plain; and there is an attractiveness about the style of composition which, if anything, increases the difficulty of exposing the errors into which, we believe, the author has fallen. The first chapter is devoted to the consideration of the Sensation of Hunger and Thirst. There is a section on "Prolonged Fasting," in which Mr. Lewes gives evidence of his capacity for correct deduction from well established premises. After quoting several experiments showing the duration of life in various animals kept without food, he mentions that, in man death generally arrives on the fifth or sixth day of total abstinence from food and drink, though much depends upon the peculiar constitution of the individual, his age, health and other considerations.

Some die on the second or third day, whilst others may survive till the tenth, eleventh or even sixteenth days. He then cites some remarkable cases of reputed prolonged fasting, and, observing that although the waste of the body may be reduced to a minimum by perfect quiescence, yet an absolutely large waste must take place in order to keep up animal heat, he arrives at the following conclusion, which, it will be noticed, is so worded as to lead to the supposition that it is Mr. Lewes' and his alone.

"From these general considerations, which might be multiplied, I affirm that, unless all Physiology is a delusion, the marvellous stories of four years' fasting, and the like, are impostures; and this affirmation is strengthened by all the cases in which the motive and possibility of deception are eliminated. Thus when men have voluntarily starved themselves to death, they have never survived three months. Granié, who murdered his wife, starved himself in the prison of Toulouse, and expired on the sixty-third day, during which time he drank water, and occasionally ate a little. The religious enthusiast, whom Dr. Willan refers to, lived only two months, although he occasionally sucked an orange.

"These men only survived thus long, because in abstaining from solid food, they did not also abstain from liquid. Life is considerably prolonged if liquid be taken. Redi found that birds kept without water as well as food lived only nine days; those to whom he gave water lived twenty days. I cannot, however, agree with those Physiologists who, like Burdach and Bérard, attribute this sustaining power of water to the organic particles suspended in it, because such an amount must necessarily be quite inadequate to support the loss of an organism whose waste is rapid; and we must remember that an animal dies of *thirst* even more rapidly than of hunger; so that when water is withheld, the death is hastened by the complication of two causes. Now Janet McLeod, and other persons said to have lived without food or drink, were under the pressure of these two causes, and sustained that pressure, we are told, four years!

"We are thus forced to reject all narratives of absolute fasting prolonged over three months."

There is nothing further requiring notice, in this chapter, except the introduction of the term *systemic sensations*, of which more by and by. We would merely state here that this term is identical with what is ordinarily called *consciousness*—the consciousness of what is passing within the individual—and we freely accept Mr. Lewes' term as more explicit than any of those which are in ordinary use to denote this consciousness.

The second chapter is on Food and Drink, and the first

section treats "of the Nature of Food." The great diversity of alimentary substances is noticed; and incidentally the *clay-eaters* are spoken of. Upon the latter subject Mr. Lewes says:—

"Granting the fact that certain kinds of earth are really nutritious—and it is difficult to escape such a conclusion—we are completely at a loss for an adequate explanation of it. Little light is thrown on it by the assumption, probable enough, that the earth must contain organic matters, because we should imagine that in ten pounds of such earth there could scarcely be contained sufficient organic matter to supply the demands of an adult.

"Nor will it get rid of the difficulty to say that the earth only appeases hunger without nourishing the system; because, in the first place, Humboldt's testimony is that the Otomacs *subsist* on the clay at periods when other food is deficient, and, in the second place, although the local sensation of hunger may be appeased by introducing substances into the stomach, the more imperious systematic sensation of hunger is not thus to be appeased.

"We must therefore be content, at present, with accepting the fact, which the science of a future day may possibly explain."

And he then proceeds to give us his idea of "how to investigate food."

"Assured as we are that all alimentary substances must be transformed into the organic unity we name blood, and assured also that the substances so transformed are really various in kind, specifically distinct *before* they have undergone this transformation, it is clear that our chief attention should be withdrawn from the alimentary *substances* to fall with greater emphasis on the alimentary *process;* that is to say, we must less consider what the foods are in themselves, than *what relation* they bear to the organism which they nourish."

He asserts that of late years, especially, this has been generally disregarded; that no really physiological investigations have taken place; that the subject has fallen into the hands of the chemists; and that they have encumbered our treatises, &c., with ingenious hypotheses which furnish very little positive result. All honor to the chemists, says he. All real work is important. But, to the physiologist, chemistry is a means of *exploration*, not of *deduction*—a pillar, not a pinnacle—an instrument, not an aim.

"The chemist may analyse fat for him; but he, on receiving this analysis, will request the chemist *not* to trouble him with hypotheses respecting the part played by fat in the organism; for although the chemist may accurately estimate the heat evolved in the oxidation of so much fat, the physiologist has to do with a vital labora-

tory, extremely unlike that in which the chemist works, and he has to ascertain how the fat comports itself *there*."

Now there is a very great deal of truth in what our author says. But is he not somewhat like a child who, taking his box of wooden bricks, laboriously builds up a vast pyramid simply for the pleasure of knocking it down. For we find that, after he has entered upon the discussion of Liebig's classification of food, he adds, "it is now, more or less explicitly, relinquished by all advanced physiologists."

But as Mr. Lewes *has* built the pyramid, we may as well see whether he takes correct means for its destruction; whether the missile is fair, the aim straight, and the blow decisive.

His argument would appear to be directed principally against the assumption that nitrogenous substances are the only, or indeed the chief, plastic materials. The point at issue between our author and Liebig (with whom, it appears, he has a personal acquaintance) is this. The latter considers water and fat to be accessories, contributing to the physical properties of organs or tissues, and assisting in the changes and processes by which they are formed. He says that they are simply mechanically absorbed, in the parts which always contain them, as in a sponge, and that they may be removed, by pressure or solvents, without in the least affecting the structure of the parts. They have, in fact, "no vital properties," and therefore do not belong to the plastic constituents of the body or of the food.

On the other hand Mr. Lewes insists that:—

"While it is true that 'albumen is the foundation, the starting-point of the whole series of peculiar tissues which are the seat of vital actions' (Liebig)—while it is true that the *peculiar* characteristic of organised tissues is that they contain albuminous substances as necessary ingredients; not less is it true that the *other* substances, thus arbitrarily excluded from the rank of tissue-makers—namely, the fats, oils, and salts, all destitute of nitrogen, are as *essential* as albumen itself. *Not a cell, not a fibre can be formed, nor can subsist without a certain amount of fat and salts.* Not a tissue can come into being, nor continue its functions, without a large proportion of non-nitrogenous materials—a proportion greatly *exceeding* that of the nitrogenous."

And again we read further on—

"To the anatomist, nerve-tissue without fat is no longer vital nerve; and blood without water is no longer vital blood. To suppose that water simply gives fluidity to blood, when in truth it is

as much an integral constituent of blood as albumen itself, is equivalent to saying that heat only gives expansion to steam—steam itself being, as all know, the product of the operation of heat on water. If fat has no vital properties in itself, neither has albumen in itself. To say that fat and water are "mechanically absorbed," is to contradict anatomical evidence, which shews them to be *structurally combined*, and always in constant quantities, varying within very small limits."

So far we are with Mr. Lewes, although he puts the matter more in the light of a discovery of his own than as the recognised doctrine of modern physiologists. It must be obvious to all true observers that even if the general form (Liebig says the structure) of parts is not affected by the removal of water and fat, yet the function is most decidedly affected by such removal. Brain or nerve tissue deprived of its water and fat gives no sign ; a dried tendon is a very different thing from a living, active one with its due proportion of water ; a muscle, as our author says, will no longer act as a muscle if deprived of its water ; and if the water is taken from the blood it is no longer blood in a physiological sense. The fact is, just as Mr. Lewes states, that physiologists have been too much in the habit of taking a chemical view of the subject, and of considering actual essentials in a living body in the same light as these would be viewed in a laboratory, viz., simply as accessories incapable of interfering with the purely chemical reactions which take place.

Hitherto then Mr. Lewes' aim is straight ; but as we proceed we do not find that his missile is quite fair. Taking the blood as an example, he endeavours to shew the very great importance of the non-nitrogenous elements by giving their average amount compared with that of the nitrogenous substances. Here, we think, he is altogether at fault. He brings forward his best artillery in favor of the essential character of non-azotised substances which are found in but small quantities in different tissues, and then turns round upon his nitrogenous stumbling-blocks, and says they cannot have so vastly superior an importance because they exist in comparatively small quantity. We find him still further at fault when we come to examine into his facts, for in speaking of blood, he says :—

"Examination of the structure of the blood shows that, so far from being composed exclusively of nitrogenous substances, it is composed of a variety of substances, among which the nitrogenous albumen and fibrine amount to less than 80 in 1,000 parts, including.

what must be added for the globulin and hæmatin of the blood-discs: that is *all* the nitrogen in the blood said to be composed solely of nitrogenous substances. No one knows this better than Liebig himself; yet his argument entirely overlooks it."

The error here is that of under-estimating the amount of nitrogenous substances.

Hæmatin and globulin are highly nitrogenous substances. Brequerel and Rodier analysed the blood of healthy individuals of both sexes upon several occasions, and they found that the mean amount of these very essential ingredients—which Mr. Lewes himself subsequently acknowledges to be of the utmost importance in estimating the activity of blood—to be, in men, 141·1, and in women 127·2 per thousand; and the mean of these amounts would, of course, be 134·15. But we are quite willing to take Mr. Lewes' own figures given on page 262 (without any acknowledgment of the source from whence they were obtained,) and here we find as follows:—

	In 1·000 parts of blood.	
	Albumen	70·000
	Fibrine.....	2·200
Cells	Globulin.....	123·500
	Hæmatin.....	7·500
	Total...	203·200

So that Mr. Lewes misrepresents the fact by using the word *including* instead of *excluding*. Had he said that "the nitrogenous albumen and fibrine amount to less than 80 in the 1,000 parts, *excluding* what must be added for the globulin and hæmatin of the blood-discs," we could have assented to his statement; but with his words before us and the facts in our recollection, we are forced to acknowledge that he has distorted the latter in the endeavour to give force to the former. No one knows better than Mr, Lewes, that hæmatin and globulin are nitrogenous bodies—the latter being very closely allied to, if not identical with albumen—and yet his argument entirely overlooks it!

Our author next gives us his idea of a correct classification of food. He divides all alimentary substances into two great classes—Inorganic and Organic. Such a division as this has the advantage of being extremely simple, and of not embracing any particular theory, except, what now-

a-days will scarcely be denied, that certain inorganic substances are to all intents and purposes histogenetic.

But Mr. Lewes goes on to say :—

"The Inorganic turns out to be the *more* important of the two, supposing always that a question of degree can lawfully be entertained where both kinds are indispensable."

For our part we see nothing unlawful in such a question, and we are by no means prepared to admit the greater importance of inorganic as compared with organic food. Mr. Lewes' argument again rests upon relative quantity being a test of nutritive value.

"Anatomy assures us that water is an essential element of tissue ; and its enormous preponderance in quantity is the expression of its pre-eminence in nutritive quality, and explains the paradox of water being, *longo intervallo*, the most sustaining of all articles. Life, we know, may be prolonged for weeks without any organic food being taken, if water be freely supplied ; but life will not continue many days when water is withheld. If, therefore, the purpose of food be to sustain the organism, that article which sustains it longest, and can with least immunity be withheld, must be the most nutritive of all ; and thus water claims pre-eminence over beef."

Arguments of this kind run all through the book. It is scarcely necessary to show their fallacy. No one denies the importance of water ; no one asserts that life will continue many days when water is withheld ; but no modern physiologist will be found to fall in with Mr. Lewes' view that this is a proof of the pre-eminence of water over beef. It is true that water alone will support life for a longer period than organic food alone will, but this simply shows that water is an essential article of food, and not that it is the principal tissue nourisher. Surely Mr. Lewes must see that his argument might be converted into the statement that a certain amount of water would nourish the body more effectually than a less supply of water, with a fair amount of beef, would do. Mr. Lewes writes as if physiologists were in the habit of denying the vast importance of water as an article of diet. He forgets that Dr. Prout made a special class of aliments which he termed *the aqueous*. And he can scarcely have read such statements as the following, to be found in any elementary work on physiology :—

"Water is the general solvent of all the other materials of the liquor sanguinis, and its abundance greatly favors organic chemical action ; for, generally, and within the limits of health, the amount of action, in the organic life of the several parts of the body, is in direct proportion to the quantity of water they contain."

"Besides that water constitutes nearly four-fifths of the total weight of the animal body, and must, therefore, enter largely into the composition of food, it is highly probable that it plays an important part in the various transformations undergone in the system; and thus contributes materially to the nutrition of the different textures."

These extracts are from a work subsequently noticed in Mr. Lewes' volume, viz., Kirkes' Hand-book of Physiology.

Of course we do not profess to point out every error into which Mr. Lewes has fallen; but when an individual, writing in such a strain as to make one believe that he looks upon himself as a very Daniel-come-to-judgment, makes such a statement as the following, it behoves us to view with a considerable amount of suspicion all similar dogmatic assertions upon which he founds his argument.

"The cornea of the eye owes its transparency to water, and the removal of that small quantity would render vision a mere perception of a local change in temperature."

Surely a more absurd sentence was never penned. Even were Mr. Lewes' supposed fact a real fact, would his conclusion be correct? How can *vision* be "a mere perception of a local change in temperature?" or how can the presence of a small quantity of water interfere with such perception? We apprehend that with a non-transparent cornea there cannot possibly be any *vision*. But what are the real facts of the case? The cornea does *not* owe its transparency to water. It is due to a peculiar but definite arrangement of the fibres of which the cornea proper is made up. These fibres are continuous with those of the sclerotic, but, instead of being indefinitely twisted, they are arranged in perfectly parallel planes; and they have interspaces between them, which, like the fibres themselves, lie in superposed planes; those of one plane being chiefly parallel, but crossing those of the planes in front and behind (speaking of the natural position of the organ) at a varying angle. There is scarcely any communication between these spaces or tubes, and they are not filled with water, but are merely moistened just the same as are the spaces in common areolar tissue.

The transparent cornea becomes opaque by stretching or pressure, and it again becomes transparent upon the removal of the pressure. It certainly was formerly supposed that the opacity, thus artificially produced, resulted from fluid being pressed out from between the corneal laminæ. We might ask where is the fluid to go to? Into the fibres themselves, or through the posterior elastic laminæ into the

aqueous chamber, or through the anterior elastic laminæ, and ooze out in drops upon the surface? But we know that the opacity is not due to the pressing out of fluid; for, first, Todd and Bowman have shown that there is no fluid there to press out; and, secondly, the opacity is produced when a very thin section is placed *under water* and there compressed or stretched. Therefore as the opacity is not due to the pressing out of water from the interspaces, the transparency cannot be due to the presence of water, but it is a necessary result of the peculiar and beautiful arrangement of the elementary parts of the structure.

Mr. Lewes also takes phosphate of lime and common salt as illustrative of the histogenetic properties of inorganic food; and he occupies several paragraphs in dealing with this part of his subject. We presume that very few physiologists, in the present day, deny such properties to these substances, any more than they deny the absolute necessity of aqueous food.

The manner in which Mr. Lewes deals with the subject of respiratory foods, as Liebig terms the fats and oils, is peculiar. After alluding to the ordinarily received opinion that the demand for carbonaceous food is greater in cold than in hot countries, because of the greater amount of heat required to keep the body at its proper temperature; he says that the illustrations afforded upon this point are singularly mean, for the Sicilians eat more oil than the Swede, and their maccaroni is highly carbonized, and the Hindoo often subsists on rice and butter, furnishing that very heat which his climate renders so undesirable. He considers that the Hindoo does not stand in need of any surplus heat, and that therefore he should be content with very little non-nitrogenous food. Now in all this Mr. Lewes overlooks entirely the great amount of heat which must be applied for the production of the profuse perspiration which exudes from the Hindoo's body. In drawing a comparison between the inhabitants of different climates we have not the *cæteris paribus* which Mr. Lewes' argument presupposes. Mr. Lewes says that he sees no reason to believe in the current hypothesis that food is "burned" in the organism, but that he has reasons (subsequently given) for believing that it is the tissues that are burned and not the food itself. He writes:—

"It is a fact that, in cold countries, fat and oil are greedily devoured; and it is the most striking fact that can be adduced in favor of the hypothesis now under discussion. But we have yet to

learn that fat is so much "combustible" material. The demand for fat in cold countries may arise out of various conditions. Increase of cold causes increased activity of respiration, and increased activity of muscular exertion. These cause a greater waste of tissue; consequently increased repair is needed; and as fat is indispensable to such repair, we can therein see one source of the demand for fat."

We are willing to let this go for what it is worth. But surely the *onus probandi* lies upon Mr. Lewes with reference to a greater waste of tissue needing so large an additional supply of fat as a cold climate prompts a resident therein to take. That it is *heat producing* material which is needed we have ample evidence in Capt. M'Clintock's Voyage of the "Fox." It is the increased activity of respiration that requires an increased quantity of respiratory food, and this the oil, fat, and blubber supply. To suppose that the waste of muscular tissue, can be replenished by any additional amount of fatty food, is simply departing from the fact, because muscular tissue being eminently albuminoid in its composition, demands an equivalent of nitrogenous substance for its repair.

We have previously said that we agree with Mr. Lewes, to a certain extent, in his estimate of the necessity of non-nitrogenous food for the support of life, but we are not prepared to go the length that he does, and assert that the inorganic foods are *more important* than the organic.

We believe that the whole matter may be summed up very briefly, and that this summing up will be endorsed by every physiologist of the present day.

We would say then that animals absolutely require organic substances for their subsistence; but that these organic substances must contain the incidental elements and compounds which are naturally combined with them. That is to say, that even organic compounds in order to their being effectually nutritive must be supplied in their natural state. That health cannot be maintained by any number of substances derived exclusively from any one group of alimentary principles, but that a mixture of nitrogenous and non-nitrogenous substances, together with the inorganic materials contained in them, is essentially requisite not only to the well-being, but also to the existence of an animal.

As we have at present only touched upon the subjects contained in a small section of Mr. Lewes' work, and the space at our command is already exhausted, we must recur to our author's volumes in the next number of the Journal.

PART III.

MEDICAL MISCELLANY.

No. 1.—*Two cases of Hepatitis, followed by formation of Abscess, relieved by operation.* By M. C. Furnell, Esq., Sappers and Miners, Dowlaishweram.

October, 1859.—I. B., a volunteer from H. M.'s 43rd Light Infantry to the A Troop Madras Horse Artillery, was admitted into hospital Oct. 24th. He is a weakly, light-haired, pale-faced, scrofulous-looking man, and has only just been discharged from the hospital of his late regiment.

There is considerable enlargement over the right hypochondriac region, with some tenderness on firm pressure. The part bears evidence of previous active treatment in leech bite, and blister scars. The tongue white and furred; irregular bowels, mostly costive; and the pulse 84, wanting in volume. Ordered

Acid Nitro-muriat ♏ x.
Tinct. Opii. ♏ v.
Infus. Quassiæ ℥ iss.
Aq. Menth. Pip. ℥ iss.
To be taken thrice daily.

To have a dose of Castor oil the following morning.

I omit a tedious recital of the daily entries; but on

Nov. 8th—General health much improved; tongue clean and moist; appetite very fair, and bowels acting with regularity. The appearance of the side much the same; there is very little tenderness, but much enlargement over the epigastric and right hypochondriac regions. Dr. Macfarlane, Acting Superintending Surgeon, Saugor Field Force, was kind enough to see the case with me this morning, and suggested the use of a seton, which was inserted somewhat low down, over the right iliac region.

To continue the Nitro-muriatic acid mixture, half diet, and a measure of wine daily.

14*th.*—Much improved; general health almost good; he has lost entirely the weakly appearance he came in with, and the hepatic region much of its fulness, the epigastrium and left side present now no unusual enlargement. To continue treatment.

17*th.*—Improving steadily.

23*rd.*—Much improved. Seton to be removed.

25*th.*—Discharged convalescent for three days.

29*th.*—Sent to duty.

Dec. 10*th.*—This man was re-admitted about the 6th with all the symptoms of acute hepatitis. I was absent on leave at the time. I find him to-day on my return, pale, anxious-looking; a hot skin; pulse 92, small calibre; tongue furred; bowels moved once scantily in 24 hours. The hepatic region much swollen, especially in one part about two inches below the ensiform cartilage, and somewhat to the right of the median line. His gums are sore from mercury, and he is now taking Quinine gr. ii., P. Doverii. gr. ii. ter in die ordered by the medical officer who saw the case during my absence. Ordered effervescing Saline c̄ Tinct. Hyoscyam ℥ x. every four hours, after the action of some Castor oil ordered to be taken immediately. Hirudines xii. to the part swollen; spoon diet.

11*th.*—Had a bad night; severe cough, attended with considerable expectoration; bowels freely open from the oil; fever continuous; to have 12 more leeches on the side, and continue the effervescing Saline. From 11th to the 17th he continued much the same; the febrile symptoms became somewhat less, but there was still considerable irritation of the system and a palpable increase of the swelling on the right side, despite constant leeching.

17*th.*—Pulse 100, small volume; tongue white and furred; bowels open; the swelling has increased, and one portion stands prominently out as if a small orange were beneath the skin. Dr. Macfarlane was kind enough to see the case again, and not only agreed in the propriety of opening the abscess, but recommended its speedily being done.

18*th.*—A small incision (about an inch in length) was made over the most prominent portion of the swelling, and the dissection carried down about half an inch, when a large-sized trocar was introduced upwards and backwards, this required to be carried about 2½ to 3 inches in depth before the abscess was reached, when about three ounces of thick laudable pus exuded. The man bore the operation well, expressed himself relieved; pulse 96 after the operation. He was seen again at noon about four hours after; pulse 100; the man comfortable and free from pain; a bread poultice to the part; Anodyne at bed time.

19*th.*—The lint, introduced yesterday to keep open the puncture, withdrawn, giving vent to about an ounce of thin brown pus. The wound looking angry and inflamed with

a suspicious blush and considerable tenderness; pulse 100; much thirst; a bad tongue; bowels confined. To have ℥ ss. of Castor oil immediately; after its action to continue the effervescing Saline c̄ Tinct. Hyoscyam. A bread poultice to the part; spoon diet.

20*th.*—Passed a good night; is cheerful and looks better this morning; skin cool; pulse 84, small volume; bowels open freely from the oil; wound has lost its blush and tenderness. Continue Saline and spoon diet.

23*rd.*—Progressing most favorably.

To have Acid Nitro-muriat ♏ v.
Tinct. Opii. ♏ iii.
Infus. Quassiæ ℥ ss.
Aq. Menth. Pip. ℥ iss. ter in die.

A chop and bread pudding for dinner; two measures of wine daily.

28*th.*—Wound healed up; no more discharge; the patient looking well and rapidly gaining colour and flesh. The side presents scarcely any enlargement, and is free from pain even on firm pressure. The man is walking about and takes convalescent exercise night and morning in a dhooly.

January 8*th.*—Discharged to duty.

CASE 2ND.

Appadoo, a Hindoo, was admitted in the Dowlaishweram Civil Hospital October 12th, with symptoms of acute hepatitis, brought on from a blow received over the hepatic region while fighting; he was subjected to the usual treatment, Leeches, Antimonial Salines, Alteratives, &c., and ultimately the Nitro-muriatic Acid; he seemed at first to progress favorably, but although the sympathetic fever diminished, it became very evident that the right hypochondrium was enlarging considerably. Fever again returned, and at length fluctuation became very evident. At one point, about three inches below the end of the sternum, and in the mesial line, the skin had on pressure that peculiar pitting so indicative of matter; his appearance,

Nov. 1*st,* was this. Thin and worn; countenance anxious and indicative of suffering; pulse 130, very small volume; tongue brown and dry; great thirst; lies on his back; knees drawn up; breathing hurried; complaining of great weakness; impressed with the idea he is about to die. Having been persuaded to drink a little arrack and water, an incision was made over the most prominent part of the swelling, of about an inch or an inch and a half long, dissection carried

down a little way, and the trocar plunged in, a quantity of thin, peculiar smelling, watery looking matter escaped, having more the appearance of congee water, which measured in quantities caught, upwards of 65 ounces. The patient bore the operation well, much better than could have been expected; several times arrack and water was administered, and he was allowed to lie down whenever he felt faint. After the abscess was emptied, and the wound was being brought together, considerable trouble was experienced from the hæmorrhage of four or five small vessels, which bled most persistently, and were secured with great difficulty. This ultimately effected, the wound was brought together with sutures, a piece of oiled lint having been previously inserted into the aperture made by the trocar; a bread and water poultice ordered as a dressing, and a broad abdominal belt to hold things together. Anodyne at bed time.

2*nd.*—Passed a tolerable night; was frequently at stool; wound looks pale and gaping; continue the same dressing. Beef tea and plenty of nourishment with the following draught.

Spirit Ammon. Arom. ♏ xv.
Tinct. Opii. ♏ v.
Ex Aqua. Menth. Pip. ℥ iss. after each motion.

3*rd.*—Diarrhœa continues; looks worn and weak; pulse 118, but of tolerable volume as compared with previous few days; tongue dry and brown; sordes on lips; no pain; wound shows symptoms of granulating; abdomen tympanitic; breathing hurried; crepitant râle and moist sound over right lung; ordered portwine ℥ i. every hour with one grain of quinine. To continue the draught and nourishment; dressed the wound.

6 P. M.—Skin hot but moist; pulse 125, fullish; man more confident and cheerful; tongue dry, but losing that rough brown appearance; on drawing out the lint from the wound, there occurred an immense discharge of pale straw-coloured serum followed by flakes of thickish lymph; dressed the wound; ordered the portwine to be given every three hours instead of every hour; ½ grain of the acetate of morphia at bed time. To discontinue the Tinct. Opii. and Spt. Amon. Arom. as the diarrhœa has ceased. (By measurement the discharge on withdrawal of the lint was found to be 24 ounces.)

4*th.*—A good night; patient looks cheerful; pulse 120, better volume; tongue inclined to moisture; bowels only

moved once during the night ; wound discharged about three ounces of very yellow pus when dressed.

To have the Sulphate of Quinine gr. i. every three hours; portwine ʒ i. every two hours. Beef tea and plenty of nourishment.

5th.—Not such a good night ; looks worn ; pulse thready, 118 per minute ; wound discharged when dressed about two ounces of pure bile, and then a small quantity of pus. To continue Portwine and Quinine.

6th.—Better pulse, 110 ; discharge much the same as yesterday, pure bile, but the motions contain likewise plenty of bile.

10th.—Has been progressing well the last few days ; there is now very little discharge of pus, but quantities of pure bile, sometimes thin as water, at others thick as honey, but always highly coloured and with a strong, very marked, bilious odour ; the man getting stronger.

14th.—Steadily progressing ; no pus now exudes, but about two ounces of bile per diem ; fœcal motions containing plenty also, is continuing his quinine and wine.

20th.—The wound nearly closed ; man recovering his strength and flesh ; he has been taking cod liver oil the last few days.

The above cases are interesting in a practical point, viz., the advisability of relieving a patient suffering from abscess of the liver by operative proceedings, but I would also draw attention to the immense benefit derived in the first case from the use of a seton. The seton was inserted Nov. 8th, the man had then an enormously enlarged liver (at least the evidence of such a state of things) ; on the 14th, six days after, the side had almost resumed its natural appearance. Dr. Macfarlane, (a medical officer whose skill is only exceeded by his kindly and cordial bearing to junior officers, and to whom the patient was indebted for the suggestion,) informs me he has extensively used this remedy in hepatic enlargements, and nearly always with as marked benefit as in the case under review.

As to when we are to operate, and what symptoms are to indicate to us, that adhesion has taken place between the peritoneum and abdominal parietes, I leave older and more experienced practitioners to decide, fully persuaded, however, of one thing, that many men are allowed to die in this country of hepatic abscess, whom this very simple operation might save. I have myself seen too many such cases

amongst European soldiers, cases where men in the prime of life have been allowed to drift on with irritative fever, battling to rid themselves of this hepatic collection of pus, until, after weeks and months of suffering, death has eased them of their agony, whilst the hand of the surgeon has been stayed by the bugbear dread that perchance adhesion has not taken place between the peritoneum and the abdominal wall. To those in such dread it might not be valueless to recall Dr. Graves' proposed mode of proceeding, said to have been attended with success in the Dublin Hospitals, where hepatic abscesses must be rare, and which, as it involves no risk, might well be tried in this country, where unfortunately but too many cases offer themselves to our notice. It is simply this. Deep seated collections of matter, says Dr. Graves, may be induced to point towards a situation, in which the resistance of the integuments and facia is removed. He accordingly recommends that an incision shall be made over the most prominent portion of an hepatic abscess, and the dissection carried down to the peritoneum without, however, dividing it. This wound is to be kept open with pledgets of lint and poulticed. In the first case in which it was tried, in a few days after the operation, a fit of sneezing brought on a copious discharge of pus through the wound, and the patient recovered perfectly. Two other successful cases are on record.

Nov. 25, 1860.

No. 2.—*Case of Complete Obliteration of the Penis.* By Assistant Surgeon W. H. Rean, M.D., Zillah Surgeon, Chicacole.

Ramasawmy, Æt. 36, Gentoo. An inhabitant of Masulipatam presented himself at the Civil Dispensary, complaining of an affection of the parts of generation; on examination I was struck with the singular appearance of the scrotum and an entire absence of penis; at first I thought it one of those cases of enlargement either from hernia, elephantiasis or hydrocele, in which the virile member is hidden and can by a little manipulation be brought more or less into view; but on looking for the urethra I found it in the left groin, and it was on account of the urine causing slight excoriation between the purse and thigh that he had sought relief.

The urethra was completely soldered to the groin, and

there was not the slightest elevation to mark the existence of a penis, neither could any trace of that organ be felt by the most careful palpation. The corpora cavernosa and spongiosa seemed to have become amalgamated with the surrounding tissues and to have lost their density and peculiar characters; by examining closely around the orifice of the urethra, the skin could be seen smoother than elsewhere, and there were the remains of the papillæ peculiar to the base of the glans, but not the slightest trace of the sillon so prominent on the dorsum of the penis.

The urine was retained as well as it had ever been, could be voided in a good stream, and projected to a considerable distance on the left side. After the bladder was emptied there was not quite as much force to expel the last drops as in the normal state, and from not paying attention to drying the parts after micturition, the few drops which had found their way down had produced the ulceration. A full sized silver catheter could be passed about two inches, but no further, from the altered course of the urethra; there was no sign of stricture. He had a scrotal hernia of the right side which could be readily reduced; he had never worn a truss.

History.—About four years since he contracted syphilis, the chancres spread over the penis, scrotum, and groin, and as the ulceration healed, so the adjacent parts, not being kept detached, gradually adhered as cicatrization went on, and this great deformity was the consequence. The hernia did not exist at first, it came on two years afterwards.

Remarks.—This case shows the deplorable results of simple or non-infecting chancre; we know the tendency that form of syphilis has to become phagedenic, spreading over extensive regions, and often defying all treatment. In this patient the disease appears to have gone on uncontrolled, and when healthy action had become established, no means had been taken to prevent adhesion.

The man would, I believe, have submitted to an operation if I could have assured him of a fair result, and I had given the case much consideration.

He told me that titillation over the portion of integument which represented all that remained of the glans produced slight excitation, and that occasionally there was decided erection of the member, had I been so fortunate as to have seen it in this state, I should have been able to judge much better of the probable success of an operation.

There is no doubt that the consciousness of his infirmity preyed greatly on his mind, for whilst an inmate of the dispensary, he was in continual broils with the female patients, and eventually, having beaten one of them most unmercifully, he made his escape to avoid punishment.

The accompanying photograph* by Asst. Apothecary Lears, of the station Chicacole, shows very clearly the appearance of the patient and the slight trace of glans around the urethra.

No. 3.—*Case of Strangulated Hernia, successfully treated by Coffee, and employment of Taxis, while the lower part of the body was elevated.* By W. A. LESLIE, Esq., Medical Officer, Coonoor.

A NATIVE, of middle age, and healthy appearance, was admitted into hospital complaining of great pain in abdomen and groin; there was great anxiety of countenance, skin perspiring, but cold.

On examination an oblique hernia was found in left groin, tumour hard and tender, but not hot, about as large as a good sized orange.

He stated that the swelling appeared about eight days ago when lifting a heavy weight, since which time his bowels had not been open, and the pain had gradually increased.

The usual modes of treatment were adopted during twenty four hours without benefit, and it then struck me that I would try the internal administration of coffee; the good effects of which in such cases I have read of in some periodical—a pint of very strong coffee was accordingly made and two ounces ordered to be given every quarter of an hour—the first dose was taken at 11 A. M. and was rejected, after this he had seven doses, the last being given about 2 P. M. Shortly afterwards further attempts were made to reduce the hernia by Mr. Gunther, the Rajah of Cochin's Apothecary, the patient being in the following position. An attendant standing between the legs placed one on each of his shoulders, and then raising the pelvis from the ground kept the patient in such a position that he only rested on his

* The artistic resources at our disposal do not allow of our reproducing the illustration.—ED. *M. Q. J.*

head and shoulders, the taxis was then employed and the intestine was returned into the abdomen after about five minutes manipulation.

I believe that the coffee was beneficial in this case, but, I think, there can be no doubt about the superiority of the position such as above described over that in which patients are usually placed.

COCHIN, 1858.

No. 4.—*Treatment of Cholera. Letter from Dr. Mackay.*

TO THE EDITORS "MADRAS QUARTERLY JOURNAL OF MEDICAL SCIENCE."

GENTLEMEN,—Permit me through the medium of your Journal, to ask if any of your numerous readers have any practical experience of the effect of full doses of Belladonna in cases of cholera. It has long appeared to me, that the only satisfactory way of explaining the action of the cholera poison on the system, is through its depressing influence on the sympathetic nervous system.

As Belladonna and similar remedies seem to act by exciting that portion of the nervous system, it is rational to expect that benefit would result from its use. But facts are more valuable than theories on this important subject, and it would be interesting to know, whether among the countless remedies employed in cholera, Belladonna has ever had a fair trial.

Many practitioners are unwilling to forego entirely the use of opium in this disease, but there are few, I think, of much practical experience, who will not acknowledge that they have seen little or no benefit result from it, while some have pronounced it decidedly injurious. If the above mentioned theory of the action of the poison is correct, while it would lead us to expect benefit from Belladonna, it will also explain why opium may be not only useless, but injurious.

I am, gentlemen, yours very truly,

GEO. MACKAY, M.D.,
Madras Medical Service.

PALAVERAM, 6*th June* 1861.

We shall be glad to publish the results of treatment in epidemic cholera, or practical suggestions on the subject.—ED. *M. Q. J.*

No. 5.—*A Case of Typhoid Fever—Death by Peritonitis, from Perforation.* By J. L. RANKING, Esq., Surgeon Major.

ALTHOUGH the existence of enteric or typhoid fever has been sufficiently established by the writings of Ewart, Scriven, Goodeve, and Francis,* a number of cases, sufficient to give it "unreserved admission amongst our Indian diseases," have not been collated.

I need therefore scarcely offer any apology for the brief detail of the case now tendered, which affords the most unimpeachable testimony to the occasional occurrence of the disease in India and Burmah, viz., that derived from *post mortem* examination, at the same time that it illustrates the not infrequent fatal termination of such cases, at a period when convalescence may have far advanced, and the patient be getting about; cases in which "there may be every appearance of such improvement in the patient's general appearance as to throw the most cautious and experienced practitioner off his guard"†.

CASE.

Henry Bowell, Gunner, D Company, 1st Battalion H. M.'s Madras Artillery, aged 25 years, of one year's residence in India and Burmah, of sanguine temperament, and temperate habits, was brought to hospital on the evening of the 30th November 1860, complaining of having been four days ill, with headache; fever not very pronounced, but subject to daily exacerbation about noon—pain in the back and limbs; a furred tongue; vomiting and diarrhœa; a tense, humid and tender abdomen, the tenderness being greatest in the right iliac region, where gurgling was experienced on palpation; pulse 100, soft, and wanting in power.

This condition of low febrile disturbance, with daily exacerbations; much pain in back and limbs; *diarrhœa* with *tenderness in right iliac region; tension and tympanitic distention of abdomen;* and *deafness* (a marked symptom throughout the progress of the case, and which appeared on the 5th day of treatment and 9th of the disease); and the character of the evacuations from the bowels, which were fluid, of the consistence of pea soup, and internally mixed with blood, led me to feel that the case was not one of the ordinary fevers of the country, and to recognise its likeness to the enteric or typhoid fever of Europe and America.

The surface was examined for any evidence furnished by

* Indian Annals of Medical Science, Nos. 7, 8, 11 and 12.

† Tweedie on Continued Fever, Lecture 6. Lancet, March 17th 1860.

'rash' or other cutaneous eruption, and a dusky rash was observed upon the abdomen and at first taken to be the mulberry or morbillus rash of *typhus*. The patient however assured me that it was the remains only of aggravated 'Lichen Tropicus' or 'prickly heat.'

Further examination was then made for the 'rose' spots peculiar to, and distinctive of, *enteric* fever.

A few such spots were found about the chest; but I was not at all confident that they really constituted the true typhoid rash, neither could I trace a successive eruption of such spots.

But the whole aspect of the case led me nevertheless, at a comparatively early period, to diagnose it as enteric or typhoid fever.

The case progressed, extending through the usual prolonged period, exhibiting indistinct exacerbations, continuous diarrhœa and tympanitic distention of abdomen, with tenderness and gurgling in right iliac region.

It was not till the 28th day of treatment (the 32nd of the disease) that febrile disturbance moderated. The tongue began to clean; sordes to separate; the diarrhœa stopped; and the abdomen ceased to be tender on pressure; the pulse fell and convalescence commenced. The report continued favorable up to the 35th day of treatment or 39th of the disease; the evacuations had at this time become solid and formed; the abdomen had become quite tolerant of pressure; the patient sat up for an hour or two each day, and to all appearance was quite out of danger.

On the 42nd day of the disease convalescence had to all appearances so established itself that the patient was permitted to go out for an hour in a dhooly; that is to say, he was taken in a dhooly to the public gardens, distant only a quarter of a mile, sat there for half an hour, and then was brought back to hospital.

On return he complained of pain in the abdomen, and in a few hours was laboring under all the symptoms of acute and extensive peritonitis.

Perforation of typhoid ulcer was immediately diagnosed.

He died in 48 hours, and a drawing of the lower portion of the ilium, a colored photograph* taken at the autopsy, is appended, sufficient proof of the correctness of the diagnosis.

There was most extensive peritonitis. I could not detect the particular ulcer in which perforation had occurred, but there can be no question that perforation did take place.

* We regret that we are unable to insert the illustration.—ED. *M. Q. J.*

Two of the ulcers in the drawing exhibit the central spot ready to be converted into a 'pin-hole' perforation, and the reason why I did not detect *the* perforation, which occurred during life, is that the lower portion of the ilium was so agglutinated to adjoining viscera by effused lymph, that it was ruptured in two places in attempting to remove it; the ruptures being found to extend through an ulcer, in each instance. No morbid appearances but those peculiar to enteric fever were found. The peritonitis was doubtless due to the disturbance of the reparative process going on; the separation of a band of lymph, by the motion of the dhooly, and the fatal termination at a stage when, to all appearances, convalescence had been fully established, cannot fail to make a deep impression, and to inculcate the utmost caution as to the management of convalescents in such cases.

RANGOON, 26*th January*, 1861.

NOTE.—The following communication received just as we were going to press, must be considered as important in relation to the future prosperity of the mercantile port of Cochin, the Medical topography of which Mr. Day has commenced a description of, in another part of this journal.—ED. *M. Q. J.*

No. 6.—*An account of an Important re-discovery of a "Mud Bank," a few miles to the North of Cochin.* By FRANCIS DAY, Esq., F.L.S., Civil Surgeon, Cochin.

FOR the last few years, the necessity of a harbour on the Western Coast of India has daily become more apparent, where the English mails (for Madras and Calcutta) could be landed, and which, it is computed, might save five days in their transit. A safe harbour on the Western Coast would, besides saving time, avoid the dangers of Ceylon, and the detentions of Galle.

Beypoor has been chosen as the Western Port for the above purpose. It is situated about ninety miles north of Cochin: but before it can be made secure, a breakwater and boat harbour, at an enormous expense, will have to be constructed, and after all its elegibility appears doubtful.

Allepey, 36 miles south of Cochin, has been pointed out as offering secure anchorage at all seasons of the year, where, consequent upon a *mud bank* existing, a natural breakwater in the open roadstead is formed, two or three miles out at sea, within which vessels may ride in perfect safety, as the sea is quite smooth even in the roughest monsoon time. The mud bank itself, is of such thin consistence,

that although it breaks the force of the sea, vessels can with safety sail through it. The disadvantage of Allepey is, that passengers will have to be re-conveyed by backwater to Cochin, and so onwards to Madras.

Had Cochin such a mud bank as Allepey, it would be, without doubt, the best port on the Western Coast, in the S. W. monsoon, consequent upon its magnificent harbour; whilst its water communication, with its present boats, is within 12 hours of Chowghat (a contemplated railway station,) and 6 of Kurriaputnum. At Narrakul, within *six miles* of Cochin, a mud bank has been *re-discovered*, which the inhabitants (probably correctly) assert has always been there.

Leaving the saving of time in the transit of mails to be computed by others, and the saving in steamers to the Officers of the P. and O. Company, who have lost three magnificent vessels lately on, or around, Ceylon, I will mention this re-discovery which is now considered very important, and also draw attention to former reports on the place.

A vessel arrived at Cochin, May 22nd 1861, during the commencement of the S. W. monsoon, and on the 25th being unable to land cargo, went to *Narrikul*, and there discharged it, bringing it to Cochin by backwater. The *mud bank* at Narrikul is within six miles of Cochin to the North, and from it the Cochin flag staff is clearly distinguishable. The smooth water is about three miles long by three broad, and there vessels can securely anchor in six fathoms. The small fishing village of Narrikul is situated on a slip of land, about one thousand yards broad; and this slip divides the backwater from the sea. It is in the native state of Cochin, about 8 miles by backwater from the town of Cochin.

What these mud banks are, where they extend, and how long they last, are all most important considerations, before deciding upon the eligibility or the reverse of Narrikul, for a port during the S. W. monsoon.

It was formerly (1810) believed, probably incorrectly, that these mud banks were formed by a ledge of rocks, which at Palliport (6 miles north of Narrikul) were stated to extend into the sea. The mud banks at that period were present at Allepey and Narrikul, but it was asserted they had previously been much more extensive,(1) and formed a good anchorage for vessels up to twenty fathoms, which were secure at all periods of the year from the violence of the prevailing winds.

(1) *Memoirs of Travancore*, Lieut. Horsley, 1839.

METEOROLOGICAL RESULTS *from the Madras Observatory Register, for the month of April* 1861.

	Barometer corrected and reduced to 32° Fahr.	Corrected Thermometer. Observed Extremes. Highest.	Lowest.	Daily means. Dry.	Wet.	General Direction of the Wind. A. M.	P. M.	Depth of Rain.	WEATHER.
	Ins.	°	°	°	°			Ins.	
1st Mon..	29·868	89·0	70·6	81·6	76·7	W. S. W.	S.	.....	Fine.
2nd Tues.	·876	88·8	71·3	81·6	75·3	S.	S.	.....	Do.
3rd Wed.	·863	89·1	69·6	82·5	76·6	S.	S. S. E.	.....	Do.
4th Thurs.	·810	90·7	73·9	85·0	78·9	S. S. E.	S.	.....	Cloudy; fine night.
5th Fri...	·792	91·2	75·5	84·8	78·5	S. S. E.	S.	.....	Light clouds; fine night.
6th Sat...	·777	92·3	74·6	85·0	78·7	S.	S.	.....	Cloudy; fine night.
7th Sun...	·775	91·6	74·2	85·3	78·4	S.	S. S. E.	.....	Hazy and cloudy.
8th Mon..	·783	91·4	74·5	85·4	78·7	S.	E. S. E.	.....	Sheet lightning at 4 A. M.
9th Tues..	·784	92·3	76·6	84·1	79·1	E.	S. E.	.....	Light clouds; fine night.
10th Wed..	·791	92·3	75·5	86·0	79·5	S. E.	S. E.	.....	Cloudy; fine night.
11th Thurs.	·781	91·4	77·0	85·8	79·8	E. S. E.	S.	.....	Cloudy morning; clear afternoon.
12th Fri....	·752	92·2	75·6	85·7	78·5	S.	S. S. W.	.....	Flying clouds; clear afternoon.
13th Sat....	·759	94·1	77·0	86·6	79·8	S. W.	S. W.	.....	Light clouds; fine night.
14th Sun...	·721	92·3	77·0	86·6	80·0	S. W.	S. W.	.....	Fine.
15th Mon..	·768	92·5	77·9	86·7	80·3	S.	S.	.....	Do.
16th Tues..	·799	93·5	77·4	86·3	80·1	S. W.	S. S. W.	.....	Flying clouds, clear afternoon.
17th Wed..	·788	92·3	77·4	86·4	80·0	S. W.	S.	.....	Fine.
18th Thurs.	·799	92·7	75·6	86·2	79·4	S.	S.	.....	Flying clouds, clear afternoon.
19th Fri....	·827	92·1	75·9	86·7	79·0	S.	S.	.....	Do. do.
20th Sat....	·836	92·3	75·9	86·2	78·9	S.	S.	.....	Fine.
21st Sun...	·799	93·2	75·4	86·7	79·6	S. S. W.	S.	.....	Do.
22nd Mon..	·754	95·2	78·5	88·3	81·5	S. S. W.	W. S. W.	.....	Light clouds.
23rd Tues..	·720	95·9	78·9	88·5	81·0	W. S. W.	S.	.....	Do. clear night.
24th Wed..	·745	93·0	78·5	86·2	80·9	S. W.	S.	.....	Do.
25th Thurs.	·823	93·5	78·6	86·5	79·9	S.	S.	.....	Do.
26th Fri....	·834	93·3	76·5	86·9	79·5	S.	S. S. W.	.....	Do. sheet lightning.
27th Sat....	·805	94·1	76·2	87·8	79·4	S.	S.	.....	Nearly fine; sheet lightning at night.
28th Sun...	·719	99·7	77·6	89·4	81·0	S. S. W.	S. S. W.	.....	Hazy; clear night.
29th Mon...	·693	100·9	77·8	90·1	79·5	W. S. W.	S. S. W.	.....	Light clouds; clear night.
30th Tues..	·725	100·8	79·3	90·0	79·8	W. S. W.	S. S. W.	.....	Fine; cloudy after midnight.

METEOROLOGICAL RESULTS *from the Madras Observatory Register for the month of May* 1861.

	Barometer corrected and reduced to 32° Faht.	Corrected Thermometer. Observed Extremes. Highest.	Lowest.	Daily means. Dry.	Wet.	General Direction of the Wind. A. M.	P. M.	Depth of Rain.	WEATHER.
	Ins.	°	°	°	°			Ins.	
1st Wed..	29·683	95·2	79·4	88·5	81·0	W. S. W.	S. S. W.	.....	Fine.
2nd Thurs	·791	93·4	78·7	85·3	80·7	W. S. W.	S.	.....	Light clouds.
3rd Fri....	·749	96·0	78·2	88·3	81·0	S. S. W.	S.	.....	Fine.
4th Sat....	·694	100·1	79·4	89·7	80·8	S. S. W.	S.	.....	Do.
5th Sun...	·663	96·1	79·4	89·3	80·9	S. W.	S. W.	.....	Fine till sunset.
6th Mon..	·718	101·8	79·2	90·9	81·1	W. S. W.	S. S. W.	.....	Cloudy.
7th Tues..	·695	99·7	79.4	90·2	81·2	W. S. W.	S. W.	.....	Fine with passing clouds.
8th Wed.	·679	101·8	79·8	92·1	80·3	S. W.	W. S. W.	.....	Fine.
9th Thurs.	·681	102·1	79·8	91·3	79·4	W.	S. W.	.....	Do.
10th Fri....	·708	102·0	82·4	90·6	80·6	W. S. W.	W. S. W.	.....	Do.
11th Sat....	·748	103·7	82·0	90·8	80·5	W.	S. S. W.	.....	Do.
12th Sun...	·657	107·5	82·9	91·0	79·2	S. W.	S. W.	.....	Do.
13th Mon...	·645	98·3	82·4	89·3	77·6	W.	S. S. W.	.....	Overcast.
14th Tues..	·662	97·8	...	85·6	80·1	W.N.W.	Variable	.....	Do.
15th Wed..	·675	97·1	...	89·5	78·8	S. S. W.	S.	.....	Do.
16th Thurs	·710	95·7	82·4	88·9	81·2	S. W.	S.	.....	Do.
17th Fri....	·717	94.2	82·2	86·3	80·1	S.	S.	.....	Cloudy, hazy.
18th Sat....	·686	93·8	81·6	87·7	80·5	S. S. W.	S.	.....	Fine. [dust about noon.
19th Sun...	·671	95·5	82·2	82·9	78·2	S. S. W.	S. S. W.	1·204	Overcast, (a storm of rain) and
20th Mon..	·626	98·9	78·7	87·7	78·1	S. W.	N. W.	.....	Cloudy.
21st Tues..	·608	99·0	82·2	88·4	78·3	N. N. W.	N. W.	.....	Light clouds.
22nd Wed..	·599	99·2	84·4	89·9	77·6	N. N. E.	W.	.....	Do.
23rd Thurs.	·594	102·7	84·4	90·1	77·2	N.	N. W.	.....	Cloudy ; clear night.
24th Fri....	·599	98·4	85·1	89·1	78·4	N. N. W.	W.S.W.	.....	Overcast.
25th Sat....	·622	98·9	82·9	90·0	79·2	N.	N. W.	.....	Do.
26th Sun...	·631	97·4	82·9	90·2	79·6	N. N. E.	W.N.W.	.....	Light clouds.
27th Mon..	·647	99·0	84·9	90·5	80·9	N. N. W.	N. W.	.....	Frequent clouds.
28th Tues..	·664	93·9	83·9	87·6	81·9	N. W.	W.N.W.	.....	Light clouds.
29th Wed..	·665	89·2	81·6	82·7	78·5	W.N.W.	N. W.	0·082	Overcast.
30th Thurs.	·637	93·0	79·2	86·3	78·5	N. N. W.	.....	.....	Do.
31st Fri.....	·638	97·7	79·4	86·7	78·6	.....	S. W.	.....	Do.
							Total rain fall...	1·286	

METEOROLOGICAL RESULTS *from the Madras Observatory Register, for the month of June* 1861.

	Barometer corrected and reduced to 32° Faht.	Corrected Thermometer. Observed Extremes. Highest.	Observed Extremes. Lowest.	Daily means. Dry.	Daily means. Wet.	General Direction of the Wind. A. M.	General Direction of the Wind. P. M.	Depth of Rain.	WEATHER.
	Ins.	°	°	°	°			Ins.	
1st Sat...	29·628	97·9	82·4	87·8	77·8	W. S. W.	S. W.	.....	Overcast.
2nd Sun...	·682	94·4	82·0	87·5	78·5	W.	W.	.....	Do. Light showers.
3rd Mon..	·696	100·7	81·8	91·1	78·9	W.	W. S. W.	0·118	Overcast.
4th Tues..	·729	98·7	81·9	90·4	77·9	W.	W. S. W.	.. ...	Nearly overcast.
5th Wed..	·738	99·3	83·9	89·8	77·1	W.	W.	0·018	Do.
6th Thurs.	·714	99·0	83·4	89·9	78·5	W.N.W.	S. W.	.....	Do. till night.
7th Fri....	·713	99·2	84·2	89·1	77·8	N. W.	S.S. W.	.....	Light clouds.
8th Sat....	·729	98·3	83·4	89·7	78·4	N. W.	W. S.W.	.....	Overcast.
9th Sun..	·726	102·5	82·6	89·3	77·7	N. W.	W.	.....	Partially fine.
10th Mon..	·739	100·6	82·6	88·1	77·1	W.N.W.	N.N. W.	.....	Overcast.
11th Tues..	·730	99·2	81·4	88·3	78·7	N. N. E.	W.S.W	.....	Do.
12th Wed..	·744	101·4	81·6	88·8	80·0	N. W.	S. S. E.	.....	Cloudy ; clear at night.
13th Thurs.	·732	101·5	81·5	89·3	78·2	W.	W.	.....	Light clouds.
14th Fri....	·717	100·5	81·6	89·1	77·8	N. W.	S. W.	.....	Do.
15th Sat....	·663	99·6	81·7	88·8	77·0	W.	W.	.....	Do. overcast at night.
16th Sun...	·667	102·0	79·9	88·2	76·8	W.	S. W.	.....	Generally fine.
17th Mon..	·690	99·9	82·9	88·6	78·7	N.	E S. E.	.....	Cloudy.
18th Tues..	·725	100·1	82·3	88·4	78·1	S. S. W.	S. S. W.	.....	Fine till night.
19th Wed..	·747	98·0	83·4	89·5	77·9	W.	W.	.....	Light clouds.
20th Thurs.	·741	95·1	81·9	87·2	79·0	N. N. W	S.	.....	Heavier do.
21st Fri. ...	·691	100·2	81·4	89·7	80·2	W. S. W.	S. W.	. .....	Light do. till night.
22nd Sat....	·694	96·3	82·4	88·5	80·2	N. W.	S.	.....	Do. do. do.
23rd Sun...	·726	93·3	82·4	84·7	77·5	N.N.W.	S.	.....	Fine till night.
24th Mon..	·741	94·2	79·7	87·6	78·1	S. W.	S. W.	.....	Half clouded.
25th Tues..	·737	96·3	78·4	85·6	77·8	W.	.....	0·206	Do. Thunder & lightning.
26th Wed..	·703	96·0	78·2	84·8	76·7	N. W.	.....	·297	Overcast thunder storm.
27th Thurs.	·668	89·2	76·6	82·6	75·2	.....	W.	.....	Overcast.
28th Fri....	·694	93·0	78·4	86·3	77·4	W.	W.	·008	Do.
29th Sat...	·730	94·0	78·6	86·0	76·6	W	W.	.....	Dull and hazy.
30th Sun...	·708	95·3	80·6	87·5	76·8	W.	W.	.....	Overcast.
							Total rain fall...	0·649	

PART IV.

MEDICAL INTELLIGENCE.

MADRAS MEDICAL COLLEGE.

THE Annual Meeting for the distribution of prizes took place on Monday 6th May, the Honorable W. Morehead in the Chair. Among those present were Colonel H. Marshall, Colonel J. Maitland, J. W. Sherman, Esq., W. R. Cornish, Esq., H. W. Porteous, Esq., C. M. Duff, Esq., M.D., A. Barclay, Esq., M.D., J. W. Mudge, Esq., M.D., A. J. Scott, Esq., M.D., R. P. Linton, Esq., M.D., E. B. Powell, Esq., M.A., Rev. P. Percival, Rev. A. B. Campbell, H. Bowers, Esq., J. T. Wheeler, Esq., Capt. J. Carpendale, Rev. Dr. Edwards, Rev. S. Wright, Rev. J. R. Macfarlane, Dr. E. G. Balfour, T. G. Clarke, Esq., W. Grant, Esq., B.A., Captain Mitchell, and Captain G. B. Roberts.

The Principal read the following Report :—

The Session for 1860-61 commenced on the 1st of August instead of September, and the Classes in Medicine and Surgery met five days in the week, instead of three as formerly. By these arrangements the courses have been very full, in fact one course in Medicine or Surgery at this College is now equal to two authorized winter courses in London.

The Private Students attend three, and the Military Students two, of these full courses. These changes were made to meet the wishes of the Professors of Medicine and Surgery.

Dr. vanSomeren, upon his return from Europe, resigned the Professorship of Anatomy and Physiology, finding that he was unable to do justice to unquestionably the most laborious Professorship in the College, as well as to the large District to which he now stands appointed.

Dr. Montgomery having been obliged to go home on Sick Certificate, the College was fortunate enough to secure Dr. vanSomeren's temporary services as Professor of Materia Medica and Botany, during the former gentleman's absence. Mr. Chipperfield has been permanently appointed to the chair of Anatomy and Physiology.

Medical Jurisprudence was, in deference to the opinion of the late Commander-in-Chief, discontinued in 1859-60, as one of the studies of the Military Students. This virtually broke up the Class

and necessitated the doing away with the Professorship, at least for a time ; however it may be expected that when the advantages appertaining to the newly instituted Senior Department of the College become generally known, there will be a sufficient increase in the number of Private Students to induce the Government to re-establish the Professorship of Medical Jurisprudence, with, it is hoped, Dr. Urquhart as its occupant. It is only justice to this gentleman to record that until the breaking up of this class no one could have conducted the duties with more zeal and ability. But although Medical Jurisprudence as a separate chair has been discontinued, the subject will, under instructions from Government, be fully entered into, and Certificates of attendance granted. The Professor of Chemistry will lecture on Mineral and Gaseous Poisons, the Professor of Materia Medica on Vegetable Poisons, the Professor of Surgery on Wounds, Violent Deaths, &c., the Professor of Medicine on Insanity, Sudden Deaths and Hygeine, and the Professor of Midwifery upon Infanticide, Pregnancy, and all the allied subjects. The Professors have arranged to give upon these subjects about 60 Lectures. It is not too much to anticipate that full justice will be done by each Professor to subjects most of which have formed integral parts of his lectures. The number of Lectures thus to be given upon Medical Jurisprudence will considerably exceed that required by any Examining body in the United Kingdom.

A writer in a local Medical Journal puts forth the following statement :—"As it is, the course of instruction communicated to the Students of the Madras Medical College, can no longer qualify for admission to any of the Examining Boards in Great Britain and Ireland, as these require that Medical Jurisprudence shall be taught as a distinct subject, and that the Professor thereof, shall not instruct in any other branch of Medical Science."

This statement is incorrect.

1st. The Royal College of Surgeons of England does not require Certificates of having attended Lectures in Medical Jurisprudence, nor do the Army or Navy Boards.

2nd. In the Regulations of the various Examining Bodies published in the *Medical Times* for September last, the Reporter can find no order prohibiting the reception of Certificates in more than one subject from the same Teacher, with the exception of the Royal College of Surgeons of England, which College it has already been shown does not require Certificates on the subject in question, and

3rdly. The writer is also in error in asserting that Students now educated at the Medical College "will present the anomaly of being ineligible to compete for honors in their own University."

These statements would not have been noticed here, did not the official positions of the Editors give them a value which might mislead those ignorant of the facts, and thus be productive of injury to a useful public Institution.

By a General Order of Government, No. 555, 11th February 1861, the Students of the College are now ranked under the heads of :

1. Senior Department.
2. Second Department.
3. Third or Junior Department.

These Departments are open to all irrespective of Creed, Colour, or Caste.

The Senior Department consists of private Students, Government, or Lane Scholars. No private student or scholar is obliged to enter the public service, but may take his degree in Medicine or Surgery at the Madras University or elsewhere and qualify himself as a Private Practitioner. There is a large field open for private practitioners, not only in Madras itself but in the large cities of this Presidency.

The Student of the Senior Department having taken his degree can, if he chooses, be a candidate for the appointment of Civil Sub-Assistant Surgeon which carries salaries varying from Rupees 150 to 250 per mensem.

To the Senior Department, Government has allotted five Medical scholarships at Rupees 20 per mensem, which are open to all properly qualified students, European, East Indian or Native.

The Royal College of Surgeons of England has lately introduced a series of new Regulations regarding the "Preliminary General Education and Examination of Candidates who have commenced their education on or after the 1st January 1861."

In an official letter to the Principal from the Secretary to the Royal College of Surgeons of England, he says, "I am further desired to request that you will adopt such steps as you may judge proper for carrying out the regulations respecting preliminary examination in general literature before the commencement of their professional studies by the Students of the Madras Medical College, as a certificate of having passed such preliminary literary examination will be required of all Candidates for the Diploma of this College, and it would be exceedingly inconvenient even if it be allowed that students of your College should be obliged to pass such examination in this country previous to their admission to the Professional examination.

"A certificate will be required of having passed an examination for matriculation or such other examination as shall in either case, from time to time, be sanctioned by the Council of this College (College of Surgeons) at a University in the United Kingdom, or at a Colonial or Foreign University recognised by the Council of this College."

This test of preliminary education has been already anticipated in the late General Order which renders imperative on a Candidate for admittance to the Senior Department of the College to have previously passed the Matriculation Examination of the Madras Univer-

sity. In regard to the new Regulations of the College of Surgeons of England not to receive certificates on more than one branch of science from one and the same Lecturer, and thus apparently to separate Anatomy and Physiology, Surgery and Clinical Surgery, Medicine and Clinical Medicine, a representation will be made from this College which may possibly have the effect of inducing the English College to relax these Regulations in favor of Colonial Schools of Medicine.

The Second Department comprises all the Students qualifying for Assistant Apothecary. To the members of this department the new Grade of Military Sub-Assistant Surgeon will be open, and young men, after ten years' service, may by their own assiduity and good conduct become Sub-Assistant Surgeons on Rs. 150, and after intervals of 5 years of approved service rise to Rs. 200, Rs. 250 or Rs. 300. These appointments will be available as reductions take place by casualties or retirements, in the Assistant Apothecaries' Grade.

The third or Junior Department, formerly the Primary School, was transferred to the Medical College at the beginning of this Session. No change has been made in the mode of teaching, but it is now under the general superintendence of the Principal of the College, and the Students are examined weekly by the Professors of Anatomy, Surgery, Medicine, and Materia Medica.

The plan of extended Class Examinations recommended in the Report for 1858-59, has been almost generally adopted by the Professors this year.

The annual Class Examinations by a Committee of Professors were as usual carried out with much strictness, and the results recorded.

All the Professors report satisfactorily upon the general conduct and progress of the Students, and the punishments inflicted have been but few.

Extracts from the Reports of the Professors are given in the Appendix.

In the Clinical Classes a marked improvement has been observed in the mode in which the Reports have been made in the Clinical Wards during the Session. The Students have shewn increased facility in expressing themselves and in seizing on the more salient points of a case. This improvement is owing to the excellent drilling they have received daily in the Wards of the Hospital from the Clinical Professors.

On the 4th of December a Class of Pharmacy, under the superintendence of the Acting Professor of Materia Medica, assisted by Messrs. Barrow and Wood, was formed. In this class the Students have been for the first time practically taught the mode of making up prescriptions and of compounding generally. They have also been instructed in the mode of preparing the principal compounds of the

Pharmacopæia, and every thing connected with general Dispensary work. This will henceforward be one of the established Classes of the College.

Mr. Cardoza, who has been a private student of this College for four years, it is understood proceeds to England to complete his Medical education. Mr. Cardoza held the first place in Medicine. His conduct has always been correct, and of late he has evinced an earnest desire to improve himself in his profession.

Mr. Ranson has taken the first place amongst the 2nd year Private Students in Chemistry and Materia Medica, whilst Mr. Boalth has held the first place in Anatomy. Mr. Taylor, B. A., of the 3rd Class, is spoken of in terms of the highest commendation by all his Teachers. Mr. Harley, the holder of a Government Scholarship, and Mr. Evers, a Lane Scholar, have done very creditably.

The proceedings are given in the Appendix.

The Final Examining Committee desire to record their favorable opinion of D. O'Leary, J. Trutwein, and W. A. Harrison. In the Professors' Reports similar high testimony is borne to the intelligence and industry of these young men. Court was first in Medicine.

To Trutwein, as the Student holding the first place, the Gold Medal is awarded.

Whitwell is again first in all his Classes, and has fully supported the high character he gained for himself in the preceding Session ; Callaghan and H. Smith have also acquitted themselves well. In the 1st Class Apprentices, R. M. Dixon, Xavier and Hollingsworth are reported favorably of.

The Final Examining Committee have reported eighteen Students of the 1st Class to be qualified for admission into the Public Service, and seven as not having come up to the required standard, and not passed.

Four out of the seven rejected Students, were "remanded Students," that is lads who having been found deficient in some former examination were, as an indulgence, allowed to remain at College for one year longer than the regulated period.

The system of remands has not answered well when a Student has, from idleness or an inaptitude for study, failed in passing the Annual Examination ; it is kinder to remove him at once from the College and let him, while still young, seek some more congenial occupation.

The rooms for the Museum were finished on the 1st of this month. This increased accommodation was much wanted. Nothing has yet been done regarding the Botanical Garden and the enlargement of the Compound. The Superintendent of the People's Park has suggested that a portion of the park might be converted into a Botanical Garden. This, from its proximity to the College, would answer well, and the Garden would be accessible to such of the Public as take an interest in Botanical subjects, as well as to the Students of the Medical College.

The Assistants, Messrs. Norton, Wilkins, Wood and Jugganathum, and Messrs. Barrow and Davis, the Teachers of the Junior Department, give, as they always have done, the greatest satisfaction, as do also the Librarian and Draughtsman.

(Signed) J. SHAW, F. R. C. S.,
Principal Medical College.

After the reading of the report, which we have given *in extenso*, prizes and certificates of merit were distributed to those Students who had distinguished themselves at the Annual Examination, and the proceedings were brought to a close by an address to those whose College career had ended, delivered by Professor Mayer, and a few words of practical advice from the Chairman.

OURSELVES AND THE MADRAS MEDICAL COLLEGE.

In the few remarks we deemed it necessary to make in our last number, regarding the Professorship of Medical Jurisprudence,* we regret to find that we fell into an error, in assuming that the Royal College of Surgeons of England required certificates of attendance upon a course of lectures on that branch of Medical Science. That corporation, we believe, is the only one of all the examining bodies, in Great Britain and Ireland, which does not render attendance on Medical Jurisprudence as a distinct course, *imperative*. We observe that the Principal of the Medical College has in his report corrected our mistake, and, strange to say, fallen into a somewhat similar one himself in stating that the Army and Navy Boards do not require evidence of instruction in Medical Jurisprudence, apparently forgetting that by recent Royal Warrants, all candidates for admission into the Army or Navy, are required "to possess such a certificate or certificates, as would qualify a civilian to practice *Medicine* and Surgery." Now as no license to practice medicine can be obtained without evidence of previous study of Medical Jurisprudence, it is evident, that students who wish to qualify for the Army or Navy, must attend to this particular, if they wish to avoid delay, and disappointment.

We are much gratified to find that there is a prospect of the Professorship in the Madras College being re-established, at no distant date, and to observe the high terms of com-

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* Vol. 2, page 418.

mendation in which the Principal alluded to the services of the late Professor, Dr. Urquhart. It appears to us that the temporary arrangements proposed for teaching Medical Jurisprudence are sufficient, but we have strong doubts as to the acceptance of certificates, by the examining bodies in Great Britain.

It will be a question moreover for the Senate of the Madras University to decide, whether, the course of jurisprudence required by the regulations for the Licence in Medicine and Surgery was intended to be an independent course or one made up by four or five professors—whose proper subjects of teaching bear some relation to Medical Jurisprudence. Our statement in regard to this latter seat of learning was denied by the Principal in his report, in the following terms—

"The writer is also in error in asserting that students now educated in the Madras Medical College, will present the anomaly of being ineligible to compete for honors in their own University."

A reference to our article will show that we stated the case, *not as a fact, but suppositiously.* We had not then the University Calendar at hand to refer to, but we are now in a position to quote the following, relating to the second examination for the degree of Licentiate in Medicine and Surgery—

"No candidate shall be admitted to this examination within three years of the time of his passing the first examination, nor unless he have produced certificates to the following effect.

* * * * * *

2. Of having subsequently to having passed the first examination attended lectures on

* Comparative Anatomy.....One course.
General Anatomy and Physiology.....Two courses.
Medicine and General Pathology..... Do.
* Hygiene .....One course.
Surgery.....Two courses.
Diseases of the Eye.....One course.
Midwifery.....Two courses.
* Medical Jurisprudence.....One course."

No distinct *courses* of lectures are given on the subjects indicated by asterisks, at the Medical College, and without these we cannot see how the requirements of the Madras University are to be met. The Principal of the College has probably received private information from the Senate of a nature to justify the denial of our remark, but so far as the official notification of requirements goes, we can only adhere

to our formerly expressed opinion, leaving our readers to form their own views for or against the sufficiency of the present College courses to qualify for degrees in the Madras University. If the requirements in regard to Comparative Anatomy and Hygiene are merely intended to show that the Senate of the University considers the subjects important, but not absolutely necessary from medical candidates for honors, we think it is incumbent upon the Senate to state the fact plainly.

We need not remark that our observations had only one aim—that of advocating the maintainance of a high standard of education at the Madras Medical College. The instruction of the rising generation of medical practitioners in India is a subject which we conceive legitimately falls within the province of the Medical Journalist to discuss, provided that he fulfils his trust in a courteous and temperate spirit, and with a single eye to the advancement of the profession.

With this explanation, we trust that any remarks we may in future think proper to make, will not be liable to misconstruction, and we shall endeavour to steer clear of points, which, without leading to anything good and useful, might give occasion to controversy.

There is one little matter which we would prefer being set right, before we conclude this somewhat personal topic. The Principal of the Medical College has alluded to the official positions, of the conductors of this journal, as giving an undue value to their lucubrations.

Now, as we have no desire to sail under false colors, we feel called upon to state distinctly, once and for all, that our editorial labors and official duties, are in no way connected.

As servants of the State we have, in common with all other public men, certain hours of leisure, and a portion of this time we occupy in our editorial labours.

No one, we suppose, will question our *right*, to employ our spare hours in this manner, any more than if we devoted the time to the pursuits of general literature, the special sciences, novel reading, performing upon the flute, or any other amusement we might like to turn our attention to.

Our opinions on the various subjects we discuss must be taken for what they are worth, and no more.

By the great kindness and courtesy of the late and present Principal Inspectors General, the *professional* records of their office are open to us for reference or selection, and the official position of one of the conductors enables him to note

such paper as are of interest and suited for publication, but beyond this our official positions have no sort of influence on the character of the journal. We have deemed it necessary to state this explicitly, as the circulation of any report, tending to lead the public to believe that our journal is a semi-official organ, is likely to damage its present success, and we hope we may venture to add, its usefulness.

THE CALCUTTA MEDICAL COLLEGE.

We are gratified to observe from the subjoined educational notice, that the system of gratuitously educating private students, upon which we lately commented (Vol. II., page 420) has ceased to exist. We trust that the good example shown by the Calcutta Medical College, in this matter, will soon be adopted in all other institutions of a similar character. It is satisfactory to read that the course of instruction "is framed to meet the requirements of the Calcutta University for obtaining its degrees in Medicine and Surgery," and that the College is avowedly intended to be a feeder to the University.

This is as it should be :—

EDUCATION NOTICE.

Medical College.

1. The Calcutta Medical College Session of 1861-62 will commence on the 15th June next.

2. Students who may be desirous of commencing their studies are requested to apply to the Principal at the Medical College, between the hours of 10 A. M. and 4 P. M., on or before the 15th May next, when the vacant Free Presentations will be awarded, and the vacancies in the Class of Scholarship-holders filled up.

3. The possession of the "Entrance Examination" Certificate of the Calcutta University will entitle Students to enter the Medical College without further Examination.

4. Under certain conditions (which may be learned on application to the Principal) Students will be admitted in anticipation of passing the University Entrance Examination, but in all cases under the clear proviso that they will present themselves for that Examination when next held.

5. The course of Instruction given in the Calcutta Medical College is framed to meet the requirements of the Calcutta University for obtaining its Degrees in Medicine and Surgery.

6. The Candidates who may fail in obtaining a Scholarship or a Free Presentation may be admitted as Students on payment of

an Entrance Fee of 15 Rupees, and a further sum of 5 Rupees monthly during the period of their stay at the College, provided they enter into a guarantee to follow out the College Curriculum to a close and to graduate at the Calcutta University. Candidates who do not intend to graduate in Calcutta, or who wish to attend only a few Courses of Lectures, may be admitted as casual Students on payment of a Fee of 40 Rupees for each Course of Lectures, or 60 Rupees for six months, attendance upon any single branch of Hospital practice.

7. The Certificates of Lectures and Hospital attendance of the College are recognized by the University of London, the Royal College of Surgeons of England, and the Worshipful Society of Apothecaries of London.

S. B. Partridge,
Offg. Principal, Medical College.

Calcutta,
Medical College Ofeice,
The 30th March 1861.

ALTERATION IN THE RATES OF PASSAGE MONEY TO MEDICAL OFFICERS.

G. O. G. No. 165. *Fort St. George, 14th May,* 1861.
Fort William, the 3rd May, 1861.

No. 387 *of* 1861.—The following paragraphs of a Military letter, from the Right Honorable the Secretary of State for India, No. 432, of the 17th November 1860, are published for general information :—

Your letter of the 12th August last, No. 202, reports that as passage money has hitherto been calculated according to rank, it appears to your Government that the Medical Officers, whose relative rank has been raised under the provisions of the late Royal Warrants, are entitled to receive passage money according to their increased rank ; and that you have issued instructions to that effect. You further state that the rates of passage allowance fixed by the late Court of Directors might now be revised, with advantage, as suggested by the Officiating Military Auditor General ; and you request the instructions of Her Majesty's Government on the subject.

2. The decision at which you have arrived, with respect to the rates of passage allowance of Her Majesty's British and Indian Medical Officers, appears to be in conformity with the intention of the Royal Warrants applicable to them. Under this decision, a Staff or Regimental Assistant Surgeon, after six years' full pay service, when entitled by the Regulations to passage money, will receive the rate fixed for a Captain, and so on in the higher Grades of relative rank.

3. With respect to your observation, regarding the expediency of revising the present rates of passage money, I have to inform you that I have been for some time in correspondence with the Secretary of State for War, with the view of assimilating the rates of passage allowance applicable to India, and the rules under which they are drawn, with those authorized by the War Office Regulations. The result will be hereafter reported to you.

"THE THIN END OF THE WEDGE."

Fort St. George, 11th June, 1861.

No. 197 *of* 1861.—The following Extract of a Military Despatch from the Right Honorable the Secretary of State for India, and its enclosure, are published in General Orders :—

Despatch dated 9th May, 1861, *No.* 88.

1. I forward to you copies of a Royal Warrant amending that part of the 16th Clause of the Royal Warrant of the 1st October 1858, which assigned to Staff or Regimental Surgeons the relative rank of Major according to the date of their Commissions. Staff or Regimental Assistant Surgeons, who may be promoted to the rank of Staff or Regimental Surgeon on or after the date of the new Warrant, will rank as Majors, but juniors of that rank. Such Staff or Regimental Surgeons as were commissioned as such before the 28th March will, however, continue to rank as Majors, according to the dates of their commissions.

2. A similar arrangement must be made as respects the Surgeons of Her Majesty's Indian Forces.

CIRCULAR No. 672. Home and Foreign.

7609

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VICTORIA R.

Whereas it has been represented to us that it is expedient to amend that part of the 16th Clause of our Royal Warrant of the 1st October 1858, which assigns to Staff or Regimental Surgeons the relative rank of Major, according to the date of their Commissions ; Our will and pleasure is, that Staff or Regimental Assistant Surgeons who may be promoted to the rank of Staff or Regimental Surgeons on or after the date of this Our Royal Warrant, shall rank as Majors, but juniors of that rank ; and that Staff or Regimential Surgeons who were commissioned as such before the date hereof, shall continue to rank as Majors according to the date of their Commissions.

Given at Our Court of St. James's, this 28th day of March, 1861, in the twenty-fourth year of Our reign.

By Her Majesty's Command,

HERBERT.

MEDICAL OFFICERS IN CIVIL EMPLOY TO WEAR UNIFORM ON CEREMONIAL OCCASIONS.

G. O. C. C. 6th June, 1861.

No. 47.—Under instructions from Government, the Provincial Commander-in-Chief directs that all Officers of Engineers in Civil employ, while permitted by Circular No. 2827, dated 27th May 1857, to wear civil uniform on ordinary occasions shall appear in uniform, with the sword, on all duties of a military nature, and on all ceremonial occasions, viz., levees, visits, &c., at Government House.

This order will also be applicable to all Military Officers in the Department of Public Works and in Civil Staff employ generally.

ORDER ON THE SUPERANNUATION CLAUSE OF THE ROYAL WARRANT OF 1860.

Fort Saint George, 18*th June*, 1861.

No. 206 *of* 1861.—The following general order by His Excellency the Governor General of India in Council, is republished :—

GENERAL ORDER BY HIS EXCELLENCY THE GOVERNOR GENERAL OF INDIA IN COUNCIL.

Fort William, the 4th June, 1861.

No. 497 *of* 1861.—The following paragraphs of a Military letter from the Right Honorable the Secretary of State for India, No. 172. of the 24th April 1861, are published for general information.

1. I have received and considered in Council your Excellency's separate despatches, Nos. 3 and 4, dated 21st January 1861, regarding the application to the Indian Medical Department of certain clauses of the Royal Warrant of the 13th January 1860.

2. In my despatch No. 326, dated 22nd August 1860, with reference to the objections which had been made to the 8th clause of the Warrant under which all Medical Officers below the rank of Deputy Inspector General will be placed on the retired list when they shall have obtained the age of 55 years, I expressed my willingness to consider any plan that your Government might suggest for reconciling the efficiency of the Public Service (which must be the primary object) with a fair consideration of the claims of the Medical Department.

3. The plan which appears to your Excellency best suited to protect the public interests and the claims, at the same time, of Medical Officers, is that of relaxing the rule embodied in the 8th clause of the Warrant, in cases where superior Medical Authorities certify the perfect competency and fitness of the Medical Officer, who has completed the age of 55 years without having obtained the rank of Deputy Inspector General.

4. I am willing to assent to the adoption of this place in regard to the Medical Officers who entered the Service prior to the promulgation of the Royal Warrant, provided that the perfect competency and fitness of the Medical Officers be, in all cases, certified by a Board consisting of two Medical Officers, one of whom must be an Inspector General or Deputy Inspector General, and the Commanding Officer, or Senior Civil Officer, under whom the Medical Officer may have been serving.

5. The Certificate of efficiency granted by such a Board may hold good for three years, but in no case will a Medical Officer under the rank of Deputy Inspector General be permitted to remain on the Effective List after he shall have attained the age of 60 years.

6. A Medical Officer who may be unable to obtain the Certificate of competency above referred to will be placed on the Retired List, receiving, as recommended by Government, the rate of Pension next above that to which his period of service in India may entitle him, provided that he be not already entitled to retire on the higher rate, viz., £700 a year.

7. A similar course may be pursued with respect to Medical Officers employed on unprofessional duties on their attaining the age of 55 years.

8. Your General Order of the 26th December, giving effect to the instructions conveyed in my Despatch, No. 397 of the 31st October 1860, regulating the amount of leave of absence allowed to reckon as service towards the qualification for the rank of Surgeon Major, is approved.

9. With reference to the modification of the Pension Rules of the Mrdical Service, suggested by Dr. Forsyth, I have to inform you that the whole question of the re-organization of the Indian Medical Service is now under consideration, and that the determination of Her Majesty's Government thereon will be communicated to you hereafter.

(Signed) R. J. H. BIRCH, Major Genl.,
Secy. to the Govt. of India.

OBITUARY NOTICES.

Sladen.—Ramsay Sladen, Esq., late Physician General, Madras Medical Establishment.

We regret to have to record the demise of the above named gentleman, which event occurred at Madras on the 6th April 1861, in the 79th year of his age. Mr. Sladen entered the service in 1806, and having filled numerous important offices and completed the regulated period in the Medical Board, retired on the highest rate of pension in the year 1846.

He subsequently resided in Madras. During the whole of his lengthened period of service Mr. Sladen was never absent from duty a single day on account of ill health. On one occasion he obtained three months' leave of absence, but from the day he landed in the country, he never left it. Until a few months before his death, the bodily vigor and mental faculties of the deceased continued unimpaired.

FORBES.—At Shemooga, of *Phthisis pulmonalis*, on the 12th June, Assistant Surgeon D. A. Forbes, Civil Surgeon of Honore.

CHANGES IN THE MADRAS MEDICAL DEPARTMENT DURING THE QUARTER.

Retirements.

19th April.—Principal Inspector General George Pearse, M.D.

28th May.—Surgeon Major W. R. Gingell.

Promotions.

23rd April.—Deputy Inspector General of Hospital R. Cole, to Principal Inspector General, Medical Department.

3rd May.—Surgeon Major J. Forbes, to Deputy Inspector General of Hospitals.

14th April.—Assistant Surgeon A. Hunter, M.D., to Surgeon.

28th May.—Assistant Surgeon H. Nott, M.D., to do.

Postings and Removals.

1st April.—Surgeon Major Jackson, from 2nd Regt. L. C., to act as Garrison Secretary, Bellary.

1st April.—Surgeon H. J. Penny, F.R.C.S., from 47th Regt. N. I., to d. d. 2nd Regt. L. C.

1st April.—Assistant Surgeon J. Chisholm, to 47th Regt. N. I.

3rd April.—Surgeon Major J. L. Ranking, from Artillery, Rangoon, to 2nd Regt. E. L. I.

6th April.—Surgeon J. FitzPatrick, from d. d. 1st Regt. L. C., to 42nd Regt. N. I.

9th April.—Assistant Surgeon R. Gillespie, 74th Highlanders, to Medical charge Depôt Ramandroog.

10th April.—Surgeon W. Forrester, to do duty 1st Regt. L. C.

16th April.—The services of Assistant Surgeon W. H. Roberts, M.D., have been placed at the disposal of the Government of India, for employment of the North Western Provinces.

19th April.—Assistant Surgeon H. C. Brodrick, received Medical

charge of the Indore Residency from Dr. H. L. Williams on the 23rd ultimo.

Assistant Surgeon W. R. Grylls, M.D., assumed Medical charge of the station of Chindwarrah, in Nagpore, on the 19th ultimo.

20th April.—Assistant Surgeon F. L. Clementson, is permitted at his own request to resign his appointment as Zillah Surgeon of Tinnevelly.

24th April.—Surgeon R. P. Linton, late promotion, to 34th Regt. L. I., to have effect from the 26th February 1861.

29th April.—Assistant Surgeon J. T. Fraser, M.B., 5th Regt. N. I., now at the Presidency, is directed to proceed to Vellore and assume Medical charge of the department 44th Regt. N. I. and station, until further orders.

3rd May.—Assistant Surgeon J. D. Gillies, M.D., to be Zillah Surgeon of Tinnevelly, vice Clementson resigned.

3rd May.—Surgeon Major C. J. Smith, L.R.C.P.L., is appointed to act as Deputy Inspector General Hospitals Northern Division, during the absence in Europe on Medical Certificate, of Deputy Inspector General of Hospitals F. Cooper, or until further orders.

6th May.—Assistant Surgeon A. Fergusson, M.D., d. d. 4th Bat. Arty., Medical charge of H. M. Steamship "Dalhousie."

7th May.—Native Surgeon Jesudasen Pillay, to be Municipal Commissioner for the Town of Madras.

16th May.—Assistant Surgeon Clementson, to 22d Regt. N. I.

16th May.—Assitant Surgeon J. McDonald, to 13th Regiment.

16th May.—T. Duckworth, M.D., to d. d. 1st Bat. Artillery.

31st May.—Assistant Surgeon J. M. Miller, M.D., Artillery, Tonghoo, Medical charge, Engineering Establishment Kistnah Anicut.

10th June.—Surgeon Major Rennick, from 27th N. I., to 38th Regt. N. I.

10th June.—Surgeon G. Mackay, M. D.. late promotion, to d. d. 23rd Regt. L. I.

10th June.—Assistant Surgeon W. H. Harris, to 43rd Regt. N. I.

10th June.—Assistant Surgeon G. H. Alexander, M.D., from 43rd Regt. N. I., to 5th Regt. N. I.

10th June.—Assistant Surgeon W. Fry, from d. d. 21st Regt. N. I., to 21st Regt. N. I.

10th June.—Assistant Surgeon Æ. M. Ross, from d. d. Pegu division, to d. d. F Troop, H. B.

15th June.—Assistant Surgeon G. Williamson, M.D., from 1st Battalion Artillery, to d. d. 4th Battalion Artillery.

27th June.—Surgeon W. Forrester, from d.d. 1st Regt. L. C. to 51st Regt. N. I.

Europe on Furlough or on Sick Certificate.

15th April.—Surgeon Major E. S. Tribe, on Medical Certificate for 18 months, under the regulations of 1854 and to embark from Madras.

17th April.—Assistant Surgeon J. Colebrook, under the old regulation s. c.

8th May.—Surgeon J. FitzPatrick, M.D., F.R.C.S., is permitted to proceed to Europe on furlough for 6 months, ceasing to draw pay from the date of his embarkation from Madras.

11th June.—Assistant Surgeon S. T. Heard, M.D., for 15 months s. c.

Postings and Removals of Warrant Medical Officers.

11th April.—2nd Apothecary J. White, of the Department of Deputy Inspector General of Hospitals, Pegu Division (now at the Presidency) to afford Medical aid to the details (European and Native) under orders to proceed to Rangoon and the Northern Ports on the "Governor Higginson" on the 12th instant.

23rd April.—Assistant Apothecary T. Roberts is to be struck off the strength of the Medical Department from the 1st Nov. 1860.

6th May.—Assistant Apothecary J. Croker, late from China, to H. M.'s Steam-ship "Dalhousie," to join.

17th June.—Assistant Apothecary D. Callaghan, from 24th Regiment N. I., to 23rd Regiment N. I.

17th June.—Assistant Apothecary C. Jordan, from d. d. 23rd Regiment N. I., to 24th Regiment N. I.

18th June.—Assistant Apothecaries W. J. Lincoln and R. G. Wright, are permitted to resign the service at their own request.

Promotions

14th May.—2nd Apothecary C. Evers, to be Apothecary from 16th April.

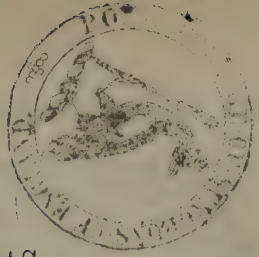
14th do. 2nd Apothecary R. Barrow, to be Apothecary from 3rd May.

14th do. 2nd Apothecary R. Quintin, to be Apothecary from 3rd May.

Pensions.

16th April.—Apothecary R. Watson of the Medical Department, is transferred to the Invalid Pension Establishment on a Pension of Rs. 80-7-0 per mensem.

3rd May.—Apothecary	W. Dickins	on	Rs. 80- 7	per mensem.	
Do.	do. J. Yaull	do.	80- 7	do.	
Do.	Assist. Apothy. J. Harris	do.	40- 0	do.	
23rd May.—2nd Apothecary	Adam Jacob	do.	60-14	do.	
Do.	do. Thos. Buggy	do.	60-14	do.	



THE MADRAS

QUARTERLY JOURNAL

OF

MEDICAL SCIENCE.

OCTOBER 1, 1861.

PART I.

ORIGINAL ESSAYS.

ART. VIII.—*The Therapeutics of Delirium Tremens.* By J. L. RANKING, Esq., Surgeon Major, H. M.'s 105th Regiment L. I.

THE opinion of the Profession in regard to the Therapeutics of Delirium Tremens, is represented by parties holding very opposite views.

One—strong, influential, and having still the firmest hold upon the confidence of the profession, and of whose doctrines "Dr. Watson's Lectures upon the Principles and Practice of Physic," may be held to be the chief exponent—believes that the disease is usually the effect of the withdrawal of the accustomed stimulus—of the "stoppage of the individuals grog,"—while their motto is "a hair of the dog that bit you," and their sheet anchor, alcohol and opium.

Another party affirms, that the disease invariably results from prolonged indulgence in alcoholic beverages—the indulgence or habit being continued up to the moment of the invasion of the disease; that the blood is poisoned by alcohol, and that consequently the exhibition of more spirit is simply adding fuel to the fire; and, as regards the exhi-

bition of opium, they ask, What, can *it* do save add to the already existing toxæmia?

A third party, holding intermediate views, has advanced its claim to a hearing—a section of the profession, who see safety in a medium course—who heartily condemn the old system of treatment by full doses of opium pushed till sleep be induced, but who advocate its use in moderate doses in special cases, and who, also in special cases, even allow a moderate use of alcohol; who treat, in fact, the *case* rather than the *disease*, and discriminate carefully between delirium èpotu, delirium ebriosum, and delirium complicated with renal, hepatic, gastro-enteric, or cerebral disease.*

The opinions and views of the second party were first or at any rate, most prominently brought to the notice of the profession by Dr. Peddi in the "Edinburgh Journal of Medical Science" for June 1854, who remarked that the disease is seldom observed in our prisons, although large numbers of confirmed drunkards are there admitted and immediately placed upon low diet, and who, moreover, has given as the result of his treatment, without alcohol and opium, eighty cases without a single death.

Dr. Bennett of Edinburgh, also a supporter of this system, writes—"Formerly the treatment used to consist in supplying the accustomed stimulus; but now, while theoretically it is clear that this is tantamount to adding coals to the fire, it has been shown by experience, that patients more rapidly recover under the use of antimonials and nutrients." (Principles and Practice of Medicine, 3rd edition, p. 438.)

Another supporter of the same views writes in relation to the administration of opium—"I am sure that, given in any but the most overpowering doses, it oftener increases than lessens the ravings of a delirious patient, while it certainly so far obscures the symptoms that after its sufficient (*i. e.* copious) administration, you must often remain in doubt whether the patient dozes, because he is half poisoned or because he is half cured." (Lancet, June 16, 1860, vol. i., p. 593. Clinical remarks by Dr. Brinton.) Dr. Laycock of Edinburgh and Dr. Dunglison of America, equally powerfully advocate the treatment without opium and alcohol, and their writings demand careful study and deserve our largest confidence.

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* Dr. Graves' treatment by opium and tartar emetic may be admitted into this class.

The therapeutics then of the disease may still fairly be considered sub judice, justifying the record of any cases, or series of cases, which may tend to the accumulation of such a store of facts as may ultimately place it upon a stable basis.

The records of practice in our European hospitals ought to enable Military Surgeons, not only to test the merits and demerits of these systems, but also to contribute towards the settlement of questions still under dispute.

Whether, for instance, the disease is, as maintained by the first party, more usually, and with what comparative frequency, the result of *the withdrawal of the accustomed stimulus*, or

Whether in the large majority of cases, and in what proportion, it results from *excesses continued up to the moment of the invasion* of *the malady.*

Whether cases of confirmed delirium tremens can be successfully treated *without alcohol* and *opium*, and what are the circumstances, the symptoms and features marking such cases.

Whether any and what character of cases *require* either alcohol or opium, or both, to conduce to a successful termination.

Whether any evidences of the injurious effects of opium can be adduced, and lastly (though the subject for enquiry might be extended)

Whether any well pronounced cases which have been successfully treated on the eliminant and nutritive system can be advanced; or any—in which the system was fairly and honestly carried out—died.

Men of known intemperate habits, always drinking and often drunk, who cannot turn out for parade without a 'dram' to 'steady their nerves,' are frequently imprisoned for days together either in the guard rooms or solitary cells. What proportion of cases of the disease under consideration are admitted under these circumstances?

It has occurred to us to make the records of the regiment of which we are now in medical charge subservient as far as practicable,* to the elucidation of these questions.

Favourably impressed with the rationale of the treatment *without* alcohol and opium, we determined, should opportunity offer, to put it fairly to the test.

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* The records only extend as far back as 1857–58.

The 'amalgamation' has afforded such an opportunity as may probably not occur again.

Within the last few weeks the payment of the 'bounty' has afforded the men the means of indulging their propensities for drink to an extent which probably never fell to their lot before. Some thousands of rupees were put into circulation, and the consequence was that 81 cases of ebriositas (drunkenness in its most profound form), and 14 cases of delirium tremens passed through the hospital.

The experience thus afforded us has led to our forming an opinion as to the Therapeutics of delirium tremens which we may express in the following propositions :—

1st.—That in *the very large majority of cases alcohol* may not only be *safely* but *advantageously dispensed with.*

2nd.—That *it, or other accustomed stimulus, cannot be entirely laid aside in old soldiers;* men who have drank hard all their lives, and who have experienced prior attacks of the disease.

3rd.—That *opium* is *unnecessary* in *all cases, and positively injurious in many.*

Or to express the propositions differently :—

1st.—The *young* soldier, *whose eliminative powers are unimpaired,* can be treated with safety and advantage without a drop of alcohol or a grain of opium.

2nd.—The *old* soldier *with organic visceral disease* requires no opium; but *does require some of his 'accustomed stimulus,'* combined with eliminants and nutrients.

3rd.—That *opium is unnecessary in all cases;* that it often fails to induce sleep, which succeeds to its withdrawal.

4th.—That if pushed to its full extent, it may and sometimes does induce a sleep passing into coma and death.

The cases of delirium tremens recorded in the Hospital Journals since April 1858, have been carefully gone over, and although we find that very many deserving only to be classed as '*Ebriositas*' have been entered as '*Delirium Tremens,*' still a sufficient number remain to afford a fair inference of the success attending the treatment by opium and alcohol, the treatment adopted by our predecessors in the regiment, who evidently acted with Dr. Watson's aphorism ever before them "that the great remedy * * is sleep, and that our

most powerful means of inducing sleep are to be found in opium. The opium must be given in full doses ; and it must be fearlessly repeated if its desired effects do not soon follow. If the patients pass many nights without sleep, they will die" (Watson's Lectures 4th edition, p. 410, 1st vol.)

Before, however, we proceed to review these cases, it will be well to glance at the *general statistics* of the disease.

The great difficulty in determining the mortality attaching to any class of cases has been shown by Dr. MacPherson (Indian Annals of Medical Science, 1854) to be owing to the fact that sufficient discrimination is not evinced in our Medical returns in the exclusion of cases of simple ebrietas or drunkenness.

That gentleman, however, gives a table of *selected* cases, in which "there is no suspicion of ebrietas having crept in ;" 56 in number with 19 deaths, or one in three (nearly).

In another table, *in*cluding cases of *ebrietas*, the mortality equals one in 6½ !

By Col. Tulloch's tables for the army generally for 1853, the mortality varies from 7·94 per cent. in Canada, to 17·6 in Great Britain; while out of 403 cases treated in the Royal Infirmary of Edinburgh during 8½ years, 101 died or 25 per cent. In Bengal from 1836 to 1840 mortality equalled one in 48. In Madras from 1832 to 1836 it equalled one in 24, and in Bombay from 1836 to 1840 it was one in 7½. Martin, who furnishes these last statistics, notes the difference in the mortuary rates in the three Presidencies ; but does not attempt to account for it. May it not be due to the different spirit consumed—Bengal troops, for instance, receive rum, Madras troops arrack ?

It has indeed been remarked by more than one authority, that mortality differs at different places, at different seasons of the year, that it is much influenced by temperature, (being most fatal in this country in the hot months), that it is influenced also by the nature of the 'habitual stimulus.'

Into statistics of this nature it is not, however, our intention to enter, but we feel it necessary to note that the mortality at this station (Trichinopoly) would appear always to have been small.

For instance, from 1829 to 1838, there were 166 admissions with only two deaths, one death only to 83 cases !*

* Medical Topography and Statistics of the Southern Division, 1843.

Again, in the returns of this Regiment from April 1858 to the 30th March 1861 we find 79 admissions with one death. A mortuary rate, even admitting that "sufficient discrimination has not been shewn in the exclusion of cases of ebrietas," extremely low and totally irreconcilable with that derived from other sources.

The treatment of the cases consisted in the administration of Liq. Opii Sedativus in full (3 i. and 3 iss.) doses steadily continued, till the patient slept.

With this favourable testimony to the results of the treatment adopted by our predecessors, it may appear a work of supererogation to scrutinize the cases further; but it is most desirable to weed the records of all cases bearing the least suspicion of not being genuine instances of the affection, of being 'cases of ebrietas only.' Unfortunately all the cases do not appear to have been recorded in the '*Journals*' which are entered in the '*Register*.' Proceeding to analyze those which are recorded, and in order to carry out the object above alluded to, viz., the exclusion of all doubtful cases, it becomes necessary to adopt some clear definition of the disease by which each case may be tested, and none more true to the national history of the affection presents itself than that given by Dr. Aitkin in his "Science and Practice of Medicine:"—

"*A delirious affection. * * * The delirium is characterised by hallucination, dread, tremors of the tendons and muscles of the hands and limbs, watchfulness, absence of sleep, great frequency of pulse, a loaded, moist tongue, with a cold, humid and perspiring surface.*"

Judged by this definition no case ought to be admitted unless there be *delirium*,—not simply nocturnal terrors and spectral illusions, but incessant, busy, restless delirium,—admitting, it may be, of coherent replies to questions, but not of long arrest of the attention; attended by *tremors* and *great frequency* of the pulse.

But lest we should be considered as adopting too restricted a definition of the term *delirium*, cases marked with distinct hallucinations and spectral illusions: although the peculiar, constant, busy, restless, delirium be absent: will be admitted within the category of delirium tremens, provided they present other essentials of the disease as tremors and great frequency of pulse.

Out of 44 cases* recorded in the journals commencing with

* It is possible that I may have passed over some cases, but I have gone over the indices of the journals more than once.

the year 1858-59, 17 only stand the test of even the more liberal definition.

Subjecting these to analysis in relation to the questions given above, it is elicited that,

1. In no instance is it recorded that the disease resulted from withdrawal of the accustomed stimulus.

2. In all it is either stated or inferred on grounds safe and satisfactory, that the habits of excess had been continued up to the period of admission into the hospital and invasion of the disease.

3. Opium (or one of its preparations) and alcohol were given in all.

4. In 2 only out of the 17 cases was the delirium characteristic of the fully developed affection.

5. In 7 the delirium consisted of *nocturnal* terrors, with hallucinations and spectral illusions.

6. In 8 there were only hallucinations and spectral illusions.

7. In 14 there were tremors—moderate in 7, pronounced in 8, and absent or not reported in 2.

8. In 4 cases, sleep followed the cold douche to head, or blisters, which (sleep) had up to that period resisted the full exhibition of opium.

9. In 1 case death from *coma with contracted pupils* followed persistence in the exhibition of opium.

As regards the success of the treatment adopted, as judged by the mortality, the result is as follows :—

If we accept *all* the cases as veritable and genuine instances of the disease, the mortality equals one in 17 cases.

If we admit only those cases presenting *some form of delirium*, then it is one in 9, and if we restrict them to the cases marked by the *true, busy, constant, restless delirium of the fully developed disease*, then one case recovered and one died.

If we divide the cases into those presenting the symptoms of the 1st, 2nd, and 3rd stages of the affection respectively, then,

All in the 1st and 2nd stages recovered.

One out of 2 in the 3rd stage died.

Figures cannot more strongly prove the importance of a most careful discrimination in our records of cases of this disease, especially as relates to the rigid exclusion of all instances of 'ebrietas;' for if we have dealt honestly with

the above 44 cases recorded in the *journals*, and find only 17 of them deserving to be classed as genuine instances of the disease under consideration, the 82 cases recorded in the *Register* (by adopting the same proportional numbers) will only give us 31 cases of true delirium tremens; and, it is worthy of note, that with only one death, the mortality is very closely that given by Dr. Martin for the Madras Presidency generally, viz., 1 in 24 cases.

This subject will bear further elucidation by giving all the admissions both from '*ebrietas*' and '*delirium tremens*,' in corresponding periods of time, thus:—

In the years 1857–58	admissions by	ebrietas	6	delirium	tremens	6
„ „ 1858–59	do.	do.	23	do.	do.	33
„ „ 1859–60	do.	do.	44	do.	do.	28
To 31st Dec. 1860	do.	do.	20	do.	do.	15
		Total...	93			82

This table on the face of it bears evidence of "want of discrimination" in nomenclature. It is scarcely possible that the cases of *delirium tremens* can have borne so high a proportion in relation to *ebrietas*.

In one year, 1858-59, more cases of *delirium tremens* were recorded than of *drunkenness!!* The latter, experience teaches us, must always bear a higher ratio to the former than is exhibited in this table.

In the returns for the last few weeks, which we shall presently advance, 'ebriositas' and 'delirium tremens' occur respectively as six to one!

We advance this in support of our belief that we have *over*, rather than *under*, estimated the proportions which these diseases really bear to each other, and to establish the fact, which cannot be too prominently advanced, and which, in our anxiety to obtain correct and reliable statistical data, we again repeat, viz., that sufficiently careful discrimination is not evinced in our medical returns, and consequently that the value of them is much impaired.

The statistics of disease under the eliminant and nutritive system of treatment claim our next consideration.

Dr. Peddie, it has been already shown, treated "upwards of 80 cases of the genuine disease, many of them severe ones, with uniform success."

Dr. Dunglison gives a table of 84 cases with only one

death; but that case, he writes, "died the morning after her admission into the hospital, having been treated in the city for nearly a week previously."

Excluding then this case there remain, 83 by Dr. Dunglison, and 80 by Dr. Peddie, or 163 cases "treated with uniform success."

Dr. Peddie's cases we have already seen presented "many severe ones." Dr. Dunglison also assures us that 55 of his cases were in the first stage of the disease, 19 in the second, and 9 in the third stage.

These statistics are of great importance. Compared with those, collated from different sources, under treatment by the old system of alcohol and opium, they cannot fail to make a great impression upon every reflecting mind, and justify an extensive trial of the system—a trial which might, under the circumstances of military life, be made authoritative, orders being issued for its adoption in all our military hospitals.

Although opposed to any interference with "free trade" principles as applied to the practice of our profession, still, supported as the system is by reliable statistics, contrasting so strongly with those pertaining to the treatment by alcohol and opium, and advocated by men of the highest professional standing, such a proceeding certainly appears justifiable.

The system, moreover, commends itself to our notice upon *moral* and *economic* grounds. On moral grounds, because so far from encouraging or keeping alive a love for "strong drinks," "a heavy blow and great discouragement" is given to deeply rooted habits and prejudices; and every case brought to a successful termination establishes an important fact, viz., that in that individual case, and consequently in all allied cases, the patient has had it demonstrated to him, not only that stimulants are not necessary to his cure, but that the disuse of them has restored him to a condition of health which he did not enjoy prior to his attack, and that consequently alcohol, even in most moderate quantities, is prejudicial to his well doing, quite independently of the risk of relapse into habits of excess, which the use of spirits may subject him to.

The cases we have to adduce do not, however, altogether place the system of treatment by eliminants and nutrients, (to the entire exclusion of alcohol and opium) upon so favourable a footing as the statistics quoted.

One case, in which it was most fully carried out, not a grain of opium or drop of alcohol having been given, but the treatment by eliminants and careful nutrition entirely trusted to, was lost.

The question is whether it is to be considered one by which the system ought fairly to be judged; in as much as, there was extensive organic visceral disease—the kidneys (the great eliminative organs) especially being extensively disorganised as evidenced by *persistent* albuminuria, and deposit of casts of the tubuli uriniferi, loaded with fatty cells and oil globules, and established after death by careful examination.

Another case equally severe, judged by general symptoms, but not attended by any evidences of organic renal or hepatic disease, speedily recovered; while all the milder cases, those which had not advanced to the third stage, uniformly did well.

We would here remark that, though favourably impressed with the rationale of the system, we by no means entered upon our labours *pledged* to it, but were quite prepared to treat the *case* rather than the *disease*, to use either alcohol or opium, or both, in cases in which they appeared indicated.

Opium or its preparations, in our hands, in no single instance proved of benefit. In two cases it manifestly did harm, and was abandoned.

Moderate doses of alcohol in the shape of brandy and water, given at bed time in two instances (cases of old soldiers of confirmed intemperate habits) induced sleep, which had resisted full and repeated doses of the Liq. Opii Sedativus.

Experience and reflection, then, lead us to condemn the use of opium in any form or any doses, but to admit the use of alcohol in special cases.

We have not the least doubt as to the advantage of the eliminant treatment to the total exclusion of alcohol and opium in cases occurring in young soldiers, and in the milder cases, or those not advanced beyond the second stage, in old soldiers.

The cases in which it may be necessary to give alcohol are indeed few. While as regards opium, we have already expressed our opinion that it is necessary in none, and positively injurious in many.

Our treatment then, although not exclusively eliminant and nutritive, has been sufficiently so to separate it widely from

the plan of treatment still so highly prized and largely adopted by many, viz., to exhibit opium in large doses "fearlessly repeated till the patient sleeps."

But it is time to enumerate the cases which have fallen under our observation within the last few weeks. They comprise 81 of 'Ebriositas' and 14 of 'Delirium Tremens.'

The latter may be accepted as presenting all the symptoms contended for as characterising the genuine disease, while not a few of the cases of ebriositas might have been admitted into the first stage of the disease.

Of these 14 cases, three presented all the symptoms characteristic of the fully developed disease, or of the third stage. In two there were unquestionable evidences of organic disease of the kidneys; a complication of a most formidable nature, and one materially influencing the result. One, treated *entirely without opium* and *alcohol, died;* the other *who had a moderate allowance* of *alcohol, recovered.* The third, a young soldier but with a very severe attack of the disease, recovered without, as before said, a grain of opium or a drop of spirit.

The mortality in relation to these 14 cases, then, stands as follows:—One in 14 as relates to the whole group without reference to the *stages* of the disease.

Or, all in the first and second stages of the disease recovered, while of those advanced to the third stage one in three died.

Without appearing to contend too warmly for the treatment without opium and alcohol, we may advantageously enquire, would the case lost, taking into consideration the condition of the kidneys, and we may add also of the liver, which was far advanced in fatty degeneration,—would that case have benefitted by the exhibition of opium and alcohol, one or both? Knowing as we do, that opium is very ill borne in all cases of organic renal disease, that a dose of that drug which may safely be given to a healthy individual, may prove a poisonous dose to one whose kidneys are organically diseased, our answer must be, we think, in the negative. Alcohol, in a similar case occurring to us, we should with the experience since afforded us, certainly give in *moderate* doses, to sustain the vital powers while the blood was being rid of its urea; for in the case alluded to, we have no doubt that death resulted from uræmic poisoning; the condition of the urine during life, and examination of the kidneys after death, proved that they were spoiled for all the purposes of elimination.

We would also remark that this case is the only one which has occurred in our practice, which in the least degree favours the views of those who consider that the disease is often caused by the withdrawal of the accustomed stimulus.

The patient was a known sot. On admission his case did not appear a very severe one, and it was not till the third day after admission that serious symptoms arose. Would a pretty liberal allowance of brandy from the commencement have saved him?

It remains for us to give the promised instances of the injurious effects of large and repeated doses of opium.

In two cases in which many nights had been passed without sleep, cases which we had treated on the eliminant and nutritive system entirely, it appeared desirable to force sleep. In each case 3 iss. of the Liq. Opii Sedativus was prescribed at 8 P. M., and 3 ss. directed to be repeated every two hours till the patient slept. In both instances we were summoned after mid-night, the patients being in a state of alarming sinking or collapse, both under the impression that they were dying. In both instances the opiate was withdrawn, and camphor and brandy given. They rallied slowly, and both slept the following night after the exhibition of a glass of hot "brandy and water." We could not attribute the condition of collapse in these cases to any thing than the Liq. Opii.,—the patients themselves attributed their feelings to the opiate, and both rallied under stimulants after the withdrawal of the opiate. The *ill* effects of the opiate and the *beneficial* effects of the brandy were to our mind most apparent. These were the only two cases in which full doses of opium "fearlessly repeated" were tried—no sleep followed, although in each case 3 iiss. of the drug had been taken, and our firm impression and belief is, that, if we had continued it till the patients slept, they would have slept the sleep of death.

We are aware that we have advanced nothing new in this paper—all has been said before, much better than we have written it.

We are, however, so strongly impressed with the weight of the moral and, we may add, economic grounds upon which the system advocated is based, that we have considered it our duty to show the extent to which we have been able to apply it during a period of an almost unprecedented excess.

The economic value of the system as applied to this regiment we will elucidate in our concluding remarks.

Since the arrival of the regiment at this station in April 1858, up to the date of our assuming charge, we find 171 cases of 'ebrietas' and 'delirium tremens,' with a total expenditure of brandy *(in such cases only)* of bottles 96 and measures 5, or allowing 24 ounces to each bottle of 14 imperial gallons.

In our practice between 81 cases of ebriositas and 14 of delirium tremens—total 95—the expenditure has only been bottles 3 and measures $5\frac{1}{2}$.

On the old system it would have equalled (taking the average of the 171 cases above given) some 53 bottles, represented in value, at the commissariat rates of Rs. 18-4-0 per dozen, by Rs 84.

We hope, or we should rather write *expect*, to have further opportunities afforded us of testing the merits of the system of treatment without alcohol and opium. We do not think, however, that further experience will materially modify the opinion we have already expressed.

The systematic examination of the urine for evidences of organic renal disease should never be omitted. Prognosis hinges mainly upon the existence or non-existence of organic changes in the kidneys and liver, and we have a strong suspicion that the large majority of cases which terminate fatally will be found to be associated with such pathological conditions, as forbid the hope of elimination of the poison of alcohol, at the same time that they offer the further complication of uræmic poisoning.

Trichinopoly, 15*th July*, 1861.

Art. IX.—*Medical Topography of Cochin.* By Francis Day, Esq., F. L. S., Civil Surgeon, Cochin.

[*Continued from page* 64.]

British Cochin being bounded on three sides by water, and containing only about 11,326 inhabitants, it would, apparently, not be a very difficult task to obtain accurate returns of the numbers of births and deaths which occur within its limits.

During four years, namely, 1855, 1856, and 1857, and from September 1st, 1859, to the same date in 1860, a register was kept by the Police of all deaths, as well as the causes to which they were stated to be due. Since the *new Police* commenced their onerous duties, this important registry has been discontinued: such an enquiry might possibly prove too correct a criterion as to the cleanliness of Cochin, for it to be politic to keep it up.

The fact of a native's death, especially if an adult, may generally be ascertained: but not so surely, the character of the disease which induced it.

The following is the *gross mortality*, as shown for the four years in the Police reports.

TABLE No. I.

Year.	Number of deaths.			Average deaths to population.		
	From non-epidemics.	From epidemics.	Total from all causes.	From non-epidemics.	From epidemics.	From all causes.
1855	368	147	515	1 in 30	1 in 77	1 in 22
1856	385	21	406	1 in 29	1 in 539	1 in 27
1857	258	65	323	1 in 43	1 in 174	1 in 38
1859	358	247	605	1 in 31	1 in 46	1 in 18
Yearly. average.	342	120	462	1 in 33	1 in 94	1 in 24

The foregoing table shows the *average yearly mortality* from all causes to be about four per cent. of the civil population, one per cent. of which are due to visitations of epidemics. This amount exceeds that of the civil population of England,(1) which in 18 years ending 1855, had an average yearly mortality, of 2·24 per cent from all causes.

Taking the *average monthly deaths*, it appears that non-epidemic diseases are most fatal during the S. W. monsoon, or in the wet months: at which period epidemics are least virulent. Should small-pox prevail, it is generally most severe in the first four months of the year. Cholera, on the contrary, more commonly commences about August, and lasts sometimes as much as eight months.

(1) Eighteenth Report of the Registrar General.

The *causes of the* 1,849 *deaths, given in Table I.*, are stated to have been as follows:—

TABLE No. II.

Disease.	Year.				Total Deaths.
	1855	1856	1857	1859	
Febres	55	48	38	31	172
Variola	147	21	65	2	235
Rubeola	1	0	0	0	1
Phthisis Pulmon	12	16	11	16	55
Pneumonia	0	1	0	0	1
Catarrhus	3	0	0	1	4
Diarrhœa	29	46	18	5	98
Dysenteria	35	14	8	51	108
Hepatitis	2	0	0	3	5
Cholera	0	0	0	245	245
Ictus solis	1	0	0	0	1
Convulsio	11	4	12	0	27
Anasarca and Ascites	105	151	78	144	478
Rheumatismus	8	2	0	3	13
Syphilis	2	0	0	2	4
Ulcus	5	0	3	1	9
Podagra	11	16	2	4	33
Hæmorrhois	3	7	1	0	11
Vermes	14	11	10	27	62
Lepra tuber	2	2	1	0	5
Cancra	0	0	1	1	2
Inflammatio	16	8	3	1	28
Wounds, &c	4	2	9	2	17
Parturitio	4	7	4	8	23
Senectus	32	32	34	30	128
Other diseases	13	18	25	26	82

This table will not bear a very strict scrutiny, but it must be remembered, that the "*causes of death*" were given in most cases by natives, and it has here been merely copied from such reports. The number of deaths from dropsy appears excessive; but the tendency of most long standing cases of disease, which terminate fatally, being towards dropsical swellings, this heading is generally given as the cause of death, no matter whether fever, dysentery, or other diseases, had previously been in existence. But bills of mortality, especially such as the above, give but a slight idea of the prevalent diseases of a place.

Examining the *causes of sickness and mortality amongst the native troops, who were stationed in Cochin*, can give no useful results. The stations they have previously occupied: the years in which the figures were collected: the proportion of sick to strength: the numbers sent away for change of air, with permanently damaged health: and many other circumstances would need enquiry, which, when ascertained, would only demonstrate the effects of the climate on the health of native troops; and from such sources no reliable conclusions as to the causes of sickness amongst the civil population could be deduced.

An examination into the *Jail Returns* would likewise lead to very erroneous deductions. The state of natives in prison is an unnatural one; the building is different from their mat huts; they always obtain proper food; their health is cared for; whilst the constraint of confinement depresses the mind, often causing disease and death: therefore this mode of enquiry would be unprolific of useful results.

The only source from which information can be derived (with the exception of the mortality returns), is the number of *admissions into the Civil Dispensary:* and for the purpose of comparing them with other stations, similar returns have been collected from Calicut, Mangalore, Tellicherry, and Honore. Owing to some difficulty in obtaining these last, the five years ending 1858 are given.

An account of the climate of Cochin has already been detailed: but as constant reference will hereafter be made to the diseases of the Western and Eastern Coasts, as well as to those of the Hills, a summary of the general climate of each will be necessary.

The five Dispensaries already mentioned as existing on the Western Coast, extend from Cochin at 9° 58′ N. lat. to Honore, between the 14th and 15th degree. They are all situated between the sea and the Western ghauts, and exposed to the full force of the S. W. monsoon. The mean height of this slip of territory is about 200 feet above the level of the sea. It is comparatively broken, precipitous, undulating and jungly. As a general rule (but liable to many exceptions), it is dangerous to travel through the low jungles of the Western Coast at the dry season of the year, though after the rains have well set in they become comparatively healthy. The climate is hot and moist.

The Dispensaries on the Eastern Coast commence at

Cuddalore, between the 11th and 12th degrees of N. lat., and extend as far as Chicacole, above the 18°. They are all situated between the sea and the Eastern ghauts, and exposed to the full force of the N. E. monsoon. The climate of the Carnatic is hot and dry. The general aspect of the country is that of a low, sandy plain, and the distance to the ghauts is from about 30 to 60 miles. North of the Kistnah the land appears as if merely formed by the recedence of the sea. The prevalent monsoon is the N. E., which in the most northern extremity of the Coast generally commences late in September or early in October: lower it begins at the middle or end of October. The S. W. monsoon is the lesser one on the Coromandel side of India, where it begins about June, and lasts till September. During the hot season, which commences in March, the winds come from the W. or S. W. during the day and a greater part of the night, and consequently have to travel over a sandy plain before reaching the sea coast. Fevers are dangerous in the jungles towards the north during the rainy season: but nearly innocuous in the hot weather.

The Hill stations are all upon the Western ghauts, and consist of those at Ooty, Coonoor, and Mercara.

TABLE No. III.

Dispensary.	Total admissions.	Fevers.	Eruptive Fevers.	Lungs.	Liver.	Stomach & Bowels.	Brain.	Cholera.	Dropsies.	Rheumatism.	Venereal.	Abscesses and Ulcers.	Wounds.	Eyes.	Skin.	Other diseases.
Cochin.....	20075	9·7	3·5	5·5	0·3	28·8	1·2	0·1	2·3	5·8	4·4	10·1	10·4	2·4	7 1	8·4
Western Coast	97077	14·04	1·39	4·87	0·2[illegible]	35·12	3·2[illegible]	0·26	1·34	5·01	2·81	9·29	5·46	2·02	5·05	9·86

This table shows *the proportion of admissions under each class of disease, to the sum total of the admissions* for five years.

Fevers form 14·0 per cent. of the total admissions into the Civil Dispensaries on the Western Coast; but during the same period only 7·7 on the Eastern. It is worthy of enquiry, why the number of cases of this disease gradually increase proceeding up the Western Coast from Cochin, where they are 9·7, to Honore, where they number 21·7? On the Eastern Coast the same obtains; thus, they are 6·3 at Cuddalore: but at Chicacole 14·1. This distribution is also observable in other classes of diseases.

Fevers are one of the most prevalent causes of admissions into the Cochin Civil Dispensary. Amongst the deaths they rank next below dropsies and small-pox.

Malarious fevers are generally of that character known as "*dumb agues*," and rarely run into remittents, unless in the month of June. The type is mostly quotidian, tertians being rare; and double tertians and quartans, almost unknown. Fever, occasioned by parasitic animals in the intestines, will be alluded to under the head of "other diseases."

The following demonstrates the number of *monthly admissions for fever* in the Dispensary for the ten years ending June 30th 1860; also the number of deaths which appear monthly in the mortuary returns, as occasioned by this disease.

Months.	Admissions in 10 years.	4 years mortality.
January	210	19
February	201	16
March	227	12
April	183	7
May	222	24
June	213	20
July	278	19
August	295	16
September	262	14
October	305	8
November	344	9
December	308	11
Total	3,048	172

During the dry, cold months of the year, namely, December, January and February, though the number of admissions is below the average, the mortality is slightly above it.

The hot months of March, April, and part of May, show a decrease of cases, and also of fatal results: fever is now least prevalent, but hepatic complications are not infrequent, and lowering measures have often to be adopted in treatment

With the May showers, the prelude to the S. W. monsoon, a sudden augmentation commences, both in admissions and fatal results, which do not again diminish until the abatement of the monsoon, and it is worthy of remark, that the drying up months are not so sickly as those in

which the greater downpour of rain occurs.(1) Complications of diarrhœa, dysentery, or chest affections, are by no means rare. In treatment, a combination of arsenic and quinine is found to be more efficacious than simple quinine; should the disease remain unchecked, an addition of bichloride of mercury is often advantageous. At the beginning of June, as the fall of rain becomes heavy, remittents are common, but not very fatal.

After the cessation of the S. W. monsoon, there is a temporary lull in the weather, until the Madras, or N. E. monsoon commences: generally the fall of rain is slight, but its effects upon the health severe. In October, the admissions which decrease during the drying up period, again (as showers occur) rapidly augment, and at this time reach their maximum; whilst fatal cases on the contrary are at their minimum.

The land winds of December, January and part of February, are with reason much dreaded: they commence about 7 P. M., and last until early in the following morning. Sleeping in them generally causes fever. In some instances it occasions temporary paralysis (especially of sensation) of some portion of the body, as an arm; or sometimes wry neck ensues. The protection of mosquitoe curtains is not sufficient to obviate its deleterious effects.

The sea breeze cannot at any period of the year be considered salubrious, more especially to feverish subjects. It may occasion ague, or masked fever (which last is not unfrequently seen in the form of otorrhœa), and the attack occurs in two ways. First, fever may be produced, in five or ten minutes, by the breeze blowing directly on a person who is perspiring. Secondly, by its decidedly malarious character, inducing fever the same as may be caused by an unhealthy land breeze. It is such a prevalent idea that the sea breeze is invariably free from fever, and also that malaria is too heavy to travel any distance across water, that it will be necessary to enter a little fully into this subject. That malaria is able to travel a great distance out to sea, appears to be proved, from the fact, that sailors coming direct from Europe are attacked by intermittent fever,

(1) These observations have merely reference to British Cochin. In the neighbouring jungles, it appears that in some places on the Western ghauts, the most feverish months are at one period of the year, and at another, in adjacent localities. This subject would no doubt prove worth enquiring into. Dr. Heyne in 1841 described some of these fevers in the "Madras Quarterly Medical Journal."

before they have even placed a foot upon an Indian shore; and whilst their ships are anchored above two miles out. Consequently, *malaria may be carried at least two miles out to sea.* Cases of this description are by no means uncommon in the Cochin roads, and are almost invariably found to commence after sleeping on deck in the wind. In some of these instances, intermittent fever had never before affected the patient, and though cold winds may occasion a fresh attack in persons who have previously suffered from ague, it does not appear probable that they could induce it for the first time; if they could do so, the theory of malaria would be untenable.

If malaria can be wafted, at least two miles out to sea, it necessarily follows that it is not so heavy as speedily to settle upon, and subside into, the water. It does not seem an improbable supposition, that it may be taken out to sea by the land wind, and returned (perhaps in a less virulent type) by the sea breeze. Whatever the correct explanation may be, the fact that the sea breeze causes fever, is beyond dispute.

During the S. W. monsoon, and, to a much less extent, throughout the whole of the year, an insidious form of malarious fever prevails; it occurs much as follows.

Slight fever may, or may not, have come on irregularly for a short time previously, in the form of an intermittent, and ceased. General debility, without emaciation, commences: tongue white and anæmic: pulse generally unaltered, although easily excited on exertion: palpitations often excessive: constant eructations of wind: bowels costive: evacuation hard and dark, or else clay coloured: urine sometimes natural, generally deficient in quantity, high coloured and hot, antiperiodics increasing and rendering it nearly the colour of pure water: there is dread of some impending evil: extreme nervousness: headache: bad rest at night time: about midnight sudden startings, and aggravation of all the symptoms, those of the chest approaching to asthma: nausea increased (except in some rare cases) by pressure of the epigastrium: often spontaneous vomiting: functions of liver disordered, the organ rather tender on pressure: cough: chest clear on percussion, no alteration to be detected on auscultation. In few cases, even of months standing, does emaciation appear to take place. During the excitement of conversation, anger, or slight exertion, all morbid symptoms disappear: but writing, or any occupation which

renders a standing, or sitting, position necessary for any length of time, causes great weariness, with dull pain in the lumbar region, and a return of the chest affection.

Purges, aggravate the symptoms, though it is absolutely necessary to regulate the bowels. A combination of arsenic, quinine, and bichloride of mercury, acts most beneficially. Iodide of potassium is often efficacious: if the tongue is very anæmic, sulphate of iron should be prescribed: the carbonate of iron also appears to do much good. When rest is very broken at night time, sulphuric ether and aromatic spirits of ammonia afford great relief.

Eruptive Fevers.—*Small-pox* is a much dreaded and very fatal scourge, in this part of India; but the inhabitants of the town of Cochin, probably owing to its partially isolated situation, do not so often suffer as those in the Rajah's territory. Close bazaars, crowded and dirty houses and localities, conjoined to filthy people, and bad living indubitably aid in its propagation; probably, to a great extent, by rendering persons more readily susceptible to any epidemic influence. It has been remarked that a large majority of the unvaccinated patients come from the territories of the Rajahs of Travancore and Cochin; more especially of the former, from whence coolies flock into British Cochin to find employment. Being very poor, they live in the cheapest places they can obtain quarters in, sometimes they bring small-pox into the town, or if it were previously present, they easily become infected by it. In 1854, out of 300 admissions for this disease, 70·6 per cent. occurred amongst strangers.

During ten years ending December 31st 1860, the monthly admissions for small-pox were as follows:—

January	164
February	216
March	159
April	93
May	71
June	45
July	53
August	56
September	46
October	46
November	37
December	68

The epidemic usually shows itself at the commencement

of the cold weather in December or January, and reaches its maximum in the hot months of February or March. More than half the attacks of this disease occur during the first four months of the year. A decrease takes place during the monsoon and the drying up months.

Variations in the rates of mortality correspond to whether the *confluent*, or *distinct*, varieties predominate. At the commencement of an epidemic above one half of the cases prove fatal; but towards its termination not above one in three or four.

The following gives the result of 470 cases, in which it was noted whether the patients had, or had not, been vaccinated.

65	vaccinated: 61 recovered:	4 or 6·1 per cent. died.	
405	unvaccinated: 216	do. : 189 or 46·6	do. do.

In the year 1854, out of 373 unvaccinated cases, 45 per cent. died. In 1861, out of 71 unvaccinated cases, 45 per cent. also died. Thus the mortality appears to be unchanged.

After the above figures it is almost self evident how great is the protection afforded by vaccination amongst those attacked by small-pox, for complications are rare amongst protected individuals. But the direct mortality by no means gives the whole number of deaths caused by this disease, as the sequelæ of severe cases frequently have an unfavourable termination.

The most rapidly fatal type appears to be that known as *variola sine eruptione*, which is fortunately rare.

The symptoms of both the confluent and distinct varieties are the same as in other places.

In unvaccinated cases complications are almost invariable. The most common are affections of the air passages and lungs, which sometimes rapidly carry off the sufferer. The skin may come away in large masses, or copious hæmorrhage from the bowels cause death. Should pregnant females be severely attacked abortion or miscarriage occurs, and almost invariably before the eruption is fully developed. Children thus brought into the world are always still-born.

The secondary fever often degenerates into a fatal typhoid character.

The sequelæ of confluent cases are generally most severe. Eye-sight is frequently lost. The patient is prostrated for months; abscesses or ulcers, of a most intractable form, may show themselves in various parts of the body. The lungs and bowels sometimes suffer from the very first, or else subsequently are insidiously attacked. Dropsy is a frequent result.

Vaccinia.—Vaccination is not in favour amongst high caste Hindoos who, for many reasons, are much prejudiced against it. Acknowledging its use, if spoken to on the subject, they loudly exclaim at the folly of their neighbours for not having their children vaccinated; they may even, if pressed, promise that their family shall be operated on, but when the time arrives, some excuse is found to delay the operation, and eventually to prevent its being performed at all at any future period.

It would be useless to enter into their arguments; some are apathetic, but not actively hostile to it, but all appear to believe that small-pox may affect a person seven times; and Hindoos regard it as a punishment for sins committed either in the present, or a previous, state of existence.

It must be plain that natives will not voluntarily submit to vaccination.(1) As soon as the operation has been performed they often rub warm wood ashes over the spot to prevent its being efficacious, and sometimes they make a mark with an irritating substance, that they may appear to have been vaccinated successfully. Even if vaccination is permitted some castes are prejudiced against lymph being taken from the vesicle at all: others have no objection, provided it is only to be employed on persons of their own caste; whilst the parents of children wish to know from whom the lymph has been procured, as unless from one of their own caste, they decline allowing the operation. Europeans and Eurasians again want to know whether elephantiasis or leprosy exist in the child's family, and so many objections are raised that it appears best to use glasses of lymph.

At times lymph appears quite inert: this is more particularly stated to have been the case in 1855 and 1856, when the season was unusually hot, oppressive, and dry. Lymph received from other parts of the Presidency, tried in 97 instances, was found quite inoperative; although, in a few cases, it was at first apparently successful, the vesicle did not maturate and cicatrices were not formed; but in the vast majority of cases it determinated simply in efflorescence of the skin about the twelfth day, or in a small ulcer-

(1) It is very questionable whether vaccination ought or ought not to be made compulsory. The most reasonable grounds for compelling its extension are, apparently, that however little human beings may care for the preservation of their own lives, they have no right to endanger those of their neighbours by refusing a prophylactic against a contagious and dangerous malady.

ated spot, from which a thin discharge exuded, and the cure of which was found tedious. Immediately on the monsoon setting in, moistening the atmosphere and lowering the temperature, vaccination again became successful.

Varicella and the other forms of eruptive fevers are not either sufficiently frequent in their attacks or severe in their effects to require notice.

Diseases of the Lungs.—This class of diseases comprises 5·5 of the admissions into the Cochin Dispensary, and an average of 4·87 of the total admissions on the Western Coast. On the Hills they number 3·8, and on the Eastern Coast 2·5 of the cases of disease treated in the Government Dispensaries. From which it appears that this class of affections are least common in the Carnatic, or East Coast of Madras, more frequent on the Hills, and most numerous on the Malabar side of the Presidency.

The monthly admissions for ten years, ending December 31st, 1860, were as follows :—

	Lining membrane of air passages.	Substance of lungs.	Asthma.
January	152	3	10
February	101	8	12
March	96	10	6
April	105	7	8
May	122	10	19
June	141	12	16
July	181	15	12
August	149	9	16
September	186	7	18
October	200	18	17
November	178	16	17
December	180	20	19

The first column shows the total monthly admissions for catarrhal and bronchitic affections, which are very prevalent, though rarely ending in serious lesions. In the cold weather of January these attacks are more common than in the warmer months of February, March and April. As the showers of May set in the number of cases increase, and continue to do so during the S. W. monsoon ; but a diminution occurs in the drying up month of August. In September an augmentation again takes place ; and in October, during the showers preceding the N. E. monsoon, admissions reach their maximum. In the colder and drier months of November and December, there is again a dimi-

nution. As might be anticipated, the hottest and driest months are those in which persons are least affected; whilst in the months in which there is the greatest amount of moisture, natives are most amenable to these attacks, which are increased by a low temperature.

The second column gives the total monthly admissions for cases of phthisis, pneumonia, hæmoptisis and affections of the substance of the lung, which are most prevalent in the cold months: next so in the moist, and least so in the hot weather.

Asthma is not a frequent disease: it is about equally prevalent in the moist and cold, and least common in the hot months.

A short time since a native of these parts was suffering severely from asthma, which always recurred in the moist months: he described each attack as commencing with fulness in the head, running from the nose for an hour or more in the morning, and the paroxysm occurring at 1 or 2 during the night. He had received the benefit of the advice of the most eminent native practitioners around, who all gave the following as the Pathology of the disease. The pain in the head causes the discharge from the nose, and the paroxysm is due to the discharge, instead of continuing to flow through the nostrils, taking a downward course, obstructing respiration and oppressing the heart.

Diseases of the Liver.—In all their varieties, are only 0·3 of the total admissions. Before going further it may be as well to enquire what relationship drunkenness and hepatitis bear to one another in the natives of Malabar?

Excesses in drinking are so common, that a native Christian positively asserted that it was correct to get drunk on feast days, and certainly this idea appears to be prevalent amongst the lower classes.

It has nowhere been satisfactorily proved, though often asserted and taken for granted, that acute and chronic hepatitis (cirrhosis is not here alluded to) are caused by excesses in drink, even in Europeans, much less in natives, and the following figures tend to show that the idea *may be* a fallacy. It *cannot be supposed* that cases of all classes of disease, *except hepatitis*, would apply for aid at the Civil Dispensary; patients thus afflicted would as surely come as any others. But as admissions are almost nominal, it is

apparent that this disease is very rare. Either the livers of the natives of Malabar are different from those of the generality of the human race, or else, as drunkenness is as prevalent as hepatitis is rare, the connexion between the two cannot, in Cochin at least, be very intimate.

It has been advanced ("Indian Annals," No. VI.) that elevated temperature has little, if anything, to do with this class of diseases. But taking the identical figures there given, that point has hardly been substantiated. European soldiers in Europe, and native soldiers in India, may be attacked in equal proportion, or the civil population of each clime may equally suffer; but that is not exactly the question.

European soldiers in Europe have 0·84 per cent. admitted, in Madras 14·31. The difference in drunkenness in the two places will not account for this augmentation of 13·47 per cent. of admissions, though the elevated temperature may. Likewise women and children who are exposed less than the men suffer less. Probably the sun, not liquor, is the most common cause of hepatitis, which not unfrequently attacks teatotallers.

Turning to the native army, it appears from the same source, that 0·76 per cent. are attacked by hepatic disease. In Cochin in ten years, out of 37,118 admissions, only 0·35 per cent. have been due to acute or chronic hepatitis. This amount by no means is a fair criterion of the drinking propensities of the population, and yet the number is less than half that of the native army (corrected by excluding children it would probably be about the same); whilst the amount of drunkenness is far above what the sepoys indulge in. Again, deaths from hepatitis in Cochin, in four years, were 0·27 of the deaths from all causes; excluding those caused by epidemics 0·36.

Diseases of the Liver form 0·22 of the total admissions in the Civil Dispensaries of the Western Coast, 0·15 of those of the Eastern, and 0 20 on the Hills. That it is twice as prevalent on the Malabar as on the Carnatic Coast, may be partially due to the greater amount of inebriety amongst the inhabitants of the former, but more probably to the greater moisture of the climate. In Cochin, where the natives are much exposed in loading and unloading vessels, and in the building yards, the admissions are above those of the average on the Western Coast.

The monthly admissions for ten years ending December 31st, 1860, were as follows :—

	Hepatitis Acuta.	Hepatitis Chronica.	Icterus.
January	5	1	6
February	6	4	9
March	8	3	11
April	1	3	7
May	4	3	9
June	3	5	8
July	9	7	19
August	4	7	11
September	4	7	13
October	11	5	19
November	6	9	14
December	10	6	17

The small number of cases admitted are hardly sufficient to draw any conclusions from, excepting that hepatic affections are about twice as prevalent during the last six months of the year as in the first.

Hepatic Abscess is a rare affection, though occasionally occurring: in the year 1860 four instances were admitted into the Civil Dispensary, three being in natives and one in an European. The European and two of the natives died, the result of the third native case is unknown as he left the Dispensary.

During the ten years preceding 1860, only two cases were admitted into the Cochin Dispensary in which hepatic abscess was suspected. In the Ernacolum Dispensary there is no record of any case of hepatic abscess having ever been admitted. This result of hepatitis must consequently be rare in and around Cochin.

Cases of cirrhosis have rarely come under treatment in Cochin.

Diseases of the Stomach and Bowels are the most common causes of admission amongst Dispensary patients in all parts of the Presidency, which might be anticipated because, under this head, comes constipation merely requiring a dose of purgative medicine. But as these drugs are probably in as great request in one place as in another, this will make but a slight difference as regards a comparison. On the Western Coast they are 35·1 of the total Dispensary admissions, on the Eastern 37·7, and on the Hills 38·4; consequently this class of diseases are more preva-

lent on the Hills than on the Eastern Coast, where, again, they are more common than on the Western.

In Cochin, the admissions under this head form 28·8 of the general total, which is less than the average of any of the other Dispensaries on the Western Coast.

The following are the most numerous and important of the various diseases which have been admitted under this head, during the different months, of the ten years ending December 31st, 1860.

Months.	Diarrhœa and Dysentery.	Dyspepsia.
January	218	362
February	217	345
March	177	323
April	203	338
May	263	325
June	310	297
July	288	339
August	297	367
September	292	354
October	285	411
November	364	456
December	315	455

Diarrhœa and *Dysentery* are of most frequent occurrence in the cold and wet months, and least common in the hot season, but the difference is not so great as might be anticipated; it is therefore probable that other causes than atmospheric changes are constantly in existence, occasioning this great amount of irritability of the bowels.

The low situation of Cochin, and the filthy state of the native houses, aided perhaps by an unwholesome diet, are active agents in producing these diseases.

In times of scarcity the augmentation in the numbers of Dispensary admissions is very great, for anything almost is employed for human food; poonac, or the refuse of the cocoanut after the oil has been expressed, is commonly eaten by the poorest classes and is very irritating to the bowels; perhaps a fish diet also tends to these diseases.

Cases are often brought to the Dispensary moribund; others, hopelessly affected. The line of demarcation between dysentery and diarrhœa cannot be drawn—one passing into the other with the greatest rapidity. Dysentery often merges into slimy diarrhœa, which is a very fatal type.

Cases of acute uncomplicated *dysentery*, in otherwise strong individuals, usually rapidly improve after the exhi-

hibition of one grain of opium, followed by a scruple of ipecacuanha, repeated in twelve hours if necessary. Should the functions of the liver be disordered, a mercurial has to be added. Amongst the generality of cases in natives, small doses of ipecacuanha, opium and blue pill are most efficacious. In some instances of chronic dysentery, nitrate of silver and Dover's powder are also useful. Dysentery, like most other diseases, has no specific treatment. *Diarrhœa* is usually best subdued by acetate of lead and opium, but many old standing cases resist all treatment.

Dyspepsia appears in so many forms that it is difficult to say which predominates. The great prevalence of drunkenness is no doubt one of the chief causes producing derangement of the stomach and bowels; whilst the very common habit of eating opium and smoking bang, has also most deleterious effects. The brackish water is likewise prejudicial. Subacute and chronic gastritis are not uncommon.

Diseases of the Brain, numerically, form only a small percentage of Dispensary admissions. On the Western Coast they number 3·23 of the general total, on the Eastern 1·26, and on the Hills 1·53.

The admissions in Cochin, being nearly 1·2, are considerably below the average on the Western Coast.

Amongst this class of diseases *simple headaches* are the predominant type, but why they should be more frequent on the Western than on the hotter and drier Eastern Coast, is questionable;—there being less on the Hills cannot be owing to the greater coolness of the climate, because the admissions are still less on the Eastern Coast.

Paralysis is very frequent in and around Cochin, but persons so affected rarely come for treatment. The disease known as *barbiers* appears to have an existence here at least. Paralysis is more commonly due to disease of the brain than to an unwholesome diet, which is such a fertile source of it in part of Bengal.

Mania does not show many patients, but is by no means uncommon; these cases, if severe, are treated in the jail. *Idiotcy* is not infrequent.

Epidemic Cholera.—This disease during five years ending December 31st, 1858, formed merely 0·26 of the total admissions on the Western Coast, 0·49 on the Eastern, and 0·06 on the Hills. In the Cochin Dispensary, during the same period, the admissions formed 0·1 of the total cases.

Cholera had for some years been absent epidemically from the Western Coast of the Madras Presidency until 1859, when it appeared in a very virulent form amongst the in-patients of the Cochin Dispensary during that and the following year: thirty eight cases proved fatal out of fifty-nine admissions, or 64 per cent. of those treated.

Cochin at that (and it may be added at the present) period was in an excellent condition for receiving the infection of cholera, and it must be confessed the inhabitants received the full benefits of the deficient sanitary arrangements of the place. From August 12th, 1859, to the end of following April, 316 individuals were registered as having died from cholera within the limits of British Cochin, or 1 in every 35 of the inhabitants, in the space of less than nine months, whilst, during the same time, the deaths from all other diseases were 269.

During this outbreak in Cochin, cholera first showed itself in the month of March, in rather a mild form; in August it commenced raging epidemically.

The majority of the first batch of cases rallied from the collapsed stage, but most of them subsequently succumbed to uræmia. In August, as the epidemic set in, the type suddenly changed, medicine appeared useless in the collapsed stage, which, in the great majority of severe cases, passed onwards to a fatal termination, without the slightest visible attempt at reaction. Medicines were inert. Thunder storms temporarily checked the diseases two or three times.

One instance occurred showing how in the same epidemic a person may survive one attack, but subsequently fall a victim to the disease. A man was admitted into the Dispensary on September 25th in a state of collapsed cholera, from which he rallied; dysentery supervened, but he was finally discharged well on October 22nd. On November 28th he was readmitted in a state of collapsed cholera, and died the next day.

No treatment proved efficacious. Acetate of lead and opium pills were distributed throughout the country for non-medical hands to administer to cholera patients, and they were reported upon as having been marvellously successful. In one place they were said to have cured 21 cases consecutively, and none died after taking them. Such a result, however, was not obtained at the Dispensary, where their use was scarcely relied on; but no case was registered as cholera, unless suppression of urine was present. Small

doses of calomel also did not give satisfaction in the developed cases.

The question of the *infectiousness of this disease* is important. Although we rarely perceive cholera spread by infection, still its being unusual does not prove its impossibility: one well authenticated fact of such having occurred, sufficiently disproving all elaborate theories to the contrary. These facts have been so numerous that it seems almost superfluous to add the following, which is not nearly so conclusive as many published statements, but it is a local case.

Cholera, in March, 1859, did not exist in Cochin or the surrounding country until March 20th, when a sporadic case occurred, which terminated fatally, about four miles from the town: the same evening the corpse was brought into the Fort. The following morning a woman living in the same street was attacked, and died in the Dispensary. Another case occurred two doors from this person's abode, and the fourth in the Dispensary, where case No. 2 had died. Subsequently the history of the succeeding cases could not be followed out. On March 24th a gentleman six miles from Cochin, died of cholera; two days previously he had spent a day in Cochin, in the same house in which the body of Case No. I. had lain on the 20th. Just after this person's death his child was seized with premonitary symptoms of vomiting, purging, rapid and weak pulse, &c., which, however, gave way to treatment. Two natives who had come from Trichoor, forty miles distant, (where cholera did not exist) to see the deceased, left the place immediately, but it was too late; they also fell victims. One went to Ernacolum, three miles from Cochin, where he died; the other returned to Trichoor, where he also expired.

Whilst cholera is epidemically present, there can be no doubt that errors in diet tend to its development. Probably no form of animal food is so unwholesome as pork (oysters at these times appear less deleterious). Why pork should hold such an unenviable pre-eminence, it is not very difficult to imagine. No other offal eating land animal is used as food. European crews are always glad to obtain its flesh, though it is properly condemned by Jews and Mahomedans.

In and around Cochin pigs run about, feeding on human excrement, and enacting the part of scavengers; finding so much filth to eat, they seldom receive food from their owners; but still they are fat, and in good condition.

It is by no means impossible that pigs may propagate this disease, although they do not appear susceptible to it themselves. Swallowing the elements of cholera may spread it to those who eat the flesh of this animal.

Dropsies.—This class of disease, which in reality is merely the result of disease, and hardly entitled to rank by itself, occasions more deaths than all other non-epidemic cases combined.

Dropsy, during the five years ending December 1858, comprised 1·34 of the admissions on the Western Coast, 0·42 on the Eastern, and 0·29 on the Hills. Thus, it appears, they are least common on the Hills, next on the Eastern Coast, and most frequent on the Western. Again, it is a remarkable fact that at Cochin they comprise 2·3 of the admissions, at Calicut 1·5, and the decrease gradually goes on until at Honore they are only 0·8 of the total. On the Eastern Coast just the reverse, obtains the proportion, at Cuddalore being 0·3, which small amount is found also to obtain at Chingleput and Madras, beyond which the increase commences until at Chicacole it reaches 2·2.

The following gives the monthly admissions in the Cochin Dispensary for ten years ending December 31st, 1860, and the mortuary returns for 1855-56-57 and 59.

Months.	Admissions in ten years.	Deaths in four years.
January	88	37
February	88	34
March	53	44
April	61	32
May	52	42
June	53	32
July	83	39
August	91	55
September	103	45
October	103	42
November	118	32
December	149	42

Thus, it appears, that considerably above half the admissions and deaths occur in the last six months of the year. The drying up month of August showing a larger number of deaths than any other. *Anasarca* is common even in young children. The sepoys in Cochin, and the prisoners in the jail, rarely suffer from this class of diseases.

Several forms of dropsy are common in Cochin, but the

usual native idea that it is almost invariably a prelude to death, cannot be sustained.

Ovarian is perhaps the only form of dropsy in which paracentesis abdominis, as a rule, succeeds; if performed in ascites, the result is almost certain to prove fatal. During the last three years one Mahomedan woman has been tapped five times in the Dispensary, and several other females have submitted to the operation, which has proved successful in all.

Ascites, uncomplicated with anasarca, is rare; the most common cause from which it arises appears to be Bright's disease of the kidneys (*Nephria*), which is very prevalent in Cochin: it will be subsequently alluded to under the class of "*Other Diseases.*" This form of dropsy seems invariably fatal—a lull in the progress of the disease, or even improvement, may occur, but it is merely temporary.

The next most common cause appears to be cirrhosis of the liver or disease of the heart: it is needless to allude to the treatment of these forms, which are too often fatal.

The type of ascites most amenable to treatment, is the asthenic, or perhaps cachectic dropsy, due to attacks of malarious fever. It is probably caused either by augmented tenuity of the circulating fluids or a diminished nervous power being exercised over the minute blood vessels, more especially the capillaries.

An interesting attempt at spontaneous cure occurred in 1859. A girl, Æt. 11, was in hospital with ascites from April 21st, to May 18th, and discharged well; but on September 24th was re-admitted with dysentery; dropsy supervened, and, by November 7th, breathing, which, owing to the enormous distension, was much impeded, became suddenly relieved: the effusion bursting into the bowels and being discharged per anum. She died on the 11th.

In 1858 about 14 quarts of fluid were drawn off in a case of ascites, and it is stated (yearly report) that it had all the appearance of venous blood, though of a somewhat dirtier brown colour. On examining the fluid microscopically, it was found to consist almost entirely of blood corpuscles, as if altered by exosmosis. A good deal of subacute inflammation followed the operation, with considerable prostration; but the patient eventually did well. In 1861 a man presented himself with ascites; on withdrawing the canula from the trocar, the character of the evacuation was so decidedly venous, that the operation was necessarily desisted from. Subsequently another attempt was equally unsuccessfully made.

It will be useless to specify remedies which must be as numerous as the different types of dropsy and the various constitutions of the patients. But perhaps the most generally successful remedy has been potassio-tartrate of iron, and early change of air to some place above the ghauts.

In seasons of scarcity no doubt many cases are caused entirely by deficient nourishment—being half due to starvation and half to disease.

Satisfaction at seeing the daily improvement of these patients is damped by the knowledge that, as soon as their health is sufficiently improved, they will leave the Dispensary, and as surely as they return to an impoverished diet, dropsy, in a fatal form, is almost certain to reappear.

Beriberi, disbelieved in by some authors[1] who have not seen the disease, can hardly be said to exist on the Western Coast of the Madras Presidency. In the Cochin Dispensary only two cases have been admitted during ten years; it is equally rare at the other Dispensaries up the Coast. Amongst the sepoys some cases have taken place, but they had all been previously affected in Burmah and elsewhere. Under the head of Beriberi, *burning in the feet* (Ignipeditis) is not included: this is by no means uncommon, and will be alluded to further on.

Mr. Ranking has pointed out that beriberi is probably often due to nephria, and in the Northern Circars, where beriberi abounds, dropsies are very severe, for, as already observed, they increase proceeding up the Eastern Coast, but decrease up the Western; whilst the proportion of admissions in the most Southern Dispensary of the Western Coast is almost identical with those in the most Northern on the Eastern. As renal disease and dropsy are equally common in both places, a first glance might give the impression that to the difference in latitude, between 10° and 18° degrees, might be attributed this difference in the symptoms, and that really beriberi (*if* it is only due to nephria) is merely acute renal dropsy, but such a belief is incorrect; Beriberi is common in Ceylon at a lower latitude than Cochin.

Rheumatic Affections.—This class of diseases during the five years ending December 31st, 1858, was found to comprise 5·01 of the total admissions into the Dispensaries on the Western Coast, 6·43 on the Eastern, and 7·25 on the

(1) See especially Morehead. *Disease in India.* Vol. II., p. 684, et seq.

Hills. The great and sudden changes of temperature to which natives are exposed on going from the plains to the Hills, no doubt, in many cases, act as exciting causes to this disease.

The inhabitants on the Eastern Coast are much more affected than those on the moister Western Coast.

On the Eastern Coast the proportion of admissions increase proceeding Northwards from Cuddalore (4·7), to Chicacole (9·9). Advancing towards the North on the Western Coast, on the contrary, does not affect the admissions, as they are 5·8 at Cochin, and 5·2 at Honore.

On the Hills it is likewise observable, that at Ooty the proportion of admissions is 3·3 less than at the lower station of Coonoor, on the same range of Hills.

During the ten years ending December 31st, 1860, the monthly admissions for rheumatism were as follows :—

January, *admissions in ten years*	133
February	109
March	89
April	116
May	118
June	111
July	145
August	123
September	119
October	169
November	124
December	144

From the above it appears that, at no one period of the year, do rheumatic affections show a notable increase over the average monthly attacks. The warm dry months have the least, but this is probably merely accidental, when it is found that the Eastern Coast, so much warmer and drier than the Western, shows a larger proportion of patients affected with rheumatism. Moisture again seems hardly to augment its frequency, and it can scarcely be attributed to malaria, at least not to the same that causes intermittents, or a large preponderance would appear in the malarious months.

As the variations in the months from hot to moist appear to exercise slight, if any, effect upon the number of admissions, it can hardly be correct to assert that rheumatism is due to insufficiency of clothing and badly constructed dwellings, aided by atmospheric changes. When

the elements of rheumatism are present, probably the attack may be assisted by these causes; but the theory that it is due to morbid matter in the blood, which morbid matter is the product of mal-assimilation, is without doubt correct; in many cases a venereal taint exists in the patient.

Rheumatism is found in three distinct forms, each of which may pass into one of the others.

Acute rheumatism is mostly confined to Europeans, but sometimes perceived in Eurasians, and still more rarely in natives. The symptoms (including metastasis) are much as seen in Europe.

Subacute rheumatism in the native appears to be the acute of the Europeans modified by the native constitution, and in these cases metastasis occasionally occurs.

Chronic rheumatism is very common, and frequently a semi-venereal disease.

The native Hakims have high reputations amongst the inhabitants for curing chronic rheumatism. They usually prescribe preparations of mercury internally, and apply marsh mallow fomentations externally. When the disease is unyielding, and their patients' money expended, they generally recommend them to apply at the Dispensary.

In treatment no specific can be pointed out. The plan advised by *Dr. Fuller* (1) is found most applicable, and iodide of potassium invaluable in some cases.

Lumbago, sciatica, wry neck, and other varieties of rheumatism are abundantly prevalent, and as unyielding as in other localities.

Venereal Affections and Diseases of the Genital Organs.

This class of diseases in five years ending December 31st, 1858, comprised 2·81 of the total admissions in the Dispensaries on the Western Coast, 3·78 on the Eastern, and 2·27 on the Hills.

Cochin in this class of diseases is far behind some other stations, but has a great preponderance over all on the Western Coast. Admissions in this disreputable class being 4·4 of the total, whilst at the next worst station, Calicut, they are 2·9.

It is hardly worth while dilating on this class of diseases which abound in all seaport towns. And as fresh infection

(1) *Rheumatism*, &c., by Dr. Fuller, London, page 77.

is continually imported into Cochin, from Arabia and other places, its prevalence here cannot be surprising.

Gonorrhœa might be thought almost indigenous in Cochin; the numbers affected are so enormous, both amongst the married and unmarried population, that it appears thought nothing of, and, as it gives them little trouble, they rarely apply for treatment, unless they happen to be *Police Peons*, or complications occur, such as orchitis or buboes.

Stricture is very common, and persons affected with it sometimes become so depressed that suicide is the not infrequent result. Next to the inhalation of chloroform, the following injection has been most successful in overcoming the spasm of a stricture. Warm water two drachms, laudanum one drachm, tincture of henbane one drachm, injected down a silver catheter, whilst pressing against a stricture.

Secondary Syphilis, in its many varieties, from semi-rheumatic pains to caries and exfoliation of large pieces of the frontal and other bones, is very common: the tonsils are often found destroyed by ulceration, as well as the surrounding structures, and sometimes the nose falls in. Mercury, being almost the only native remedy, is pushed much too far in some cases, and pseudo-syphilis in its worst form occasioned. The secondary skin diseases are perceived in the numerous forms of papular, scaly, pustular, and tubercular eruptions, &c.

Abscesses and Ulcers in the five years ending December 31st, 1858, comprised 9·29 of the admissions into the Dispensaries on the Western Coast, 16·9 on the Eastern, and 10·55 on the Hills.

In Cochin the admissions (10·1) are above the average of the Western Coast Dispensaries, but less than either at Calicut (10·7), or Honore (11·2).

As ulcers on this Coast are generally spoken of as most numerous and severe, it may not be out of place to observe that in many other localities they are far more common. In the identical five years referred to, the admissions in Chingleput were more (24·2) than in any other Dispensary on the Eastern Coast; at Madura they were 21·4, Trichinopoly 24·4, Salem 30·1, but at Tinnevelly 34·9.

Although it appears that ulcers in Cochin are by no means so numerous as in many other localities, still they are of great severity. They are often complicated with one or more of the following diseases. Syphilis, leprosy, elephan-

tiasis arabum, scrophula, skin disease; or they may arise from neglected wounds and injuries, whilst albuminuria is a very common accompaniment. As a general rule they are perceived in wretched objects, who are, without doubt, almost destitute of the common necessaries of life; but as others, in better circumstances, also suffer, though in a slighter degree, the disease is probably the effects of the climate of the Coast or the diet of the inhabitants. Although a fish diet is usually stated to cause ulcers, they are more numerous in some inland stations where fish cannot be procured, consequently this being a cause is doubtful.

Divisions of ulcers are very numerous: the majority of those in Cochin are the same as in other localities, except that the scars are often white. The *healthy*, the *weak*, the *indolent*, and the *irritable*, are all found; the *phagœdenic* also is sometimes seen, whilst the *varicose*, and *hæmorrhagic* are almost unknown.

The part of the body most usually affected is one of the extremities, commonly the lower; cases in which the following parts have been the seat of these ulcers have come under treatment: the ear, nose, cheek, lips, tongue, axilla, hypochondriac and lumbar regions, penis, scrotum, groins, and vulvæ.

The *Indolent Leproid Ulcer* is common and almost unamenble to treatment. It has the character of an indolent ulcer, heals at one side, advances on the opposite: or heals in the centre, and extends at the circumference: whilst the scar is always white. If cured it re-appears at a future date. It is often found near the joints of the fingers, the wrist, the knees or elbows. Sometimes it is almost destitute of sensation, and the application of nitric acid is unfelt,—a common accompaniment is numbness of the lower extremities as high as the knees or else along the back. Elephantoid fever may exist. These leproid ulcers are often perceived in patients in whom congenital shortening or deformity of some of the toes or fingers exist.

Treatment is most unsatisfactory. Sometimes one plan may succeed, sometimes another, but the case is invariably long in hospital. When the ulcer has not extended deeply, but slowly expands, surrounding it with a line of caustic, occasionally arrests its extension.

One form of *Simple Indolent Ulcer* is very troublesome. It generally attacks the root or side of the nail of one of the toes, mostly the great toe, and extends itself through the

nail, next through the tissues under it, until after a time the bone itself is reached when it becomes similarly affected, its cancellous structure softens and is found filled with pus. Amputation is generally the best remedy.

One species of ulceration is very distressing. The skin on the calves of the legs first feels stiff and hot; this is succeeded in the course of a day or two by a pustular eruption (each pustule being about the size of a small pin's head), rarely, if ever, extending to the anterior surface of the leg. During the subsequent forty-eight hours, these little pustules usually run into one another, forming either large or small, but very superficial, sloughs. The sensation of heat in the part becomes intense to the patient, and an elevated temperature is perceptible to the touch. It is now extremely painful to place the limb in any but a horizontal position. On putting the foot to the ground there is a peculiar stiffness in it, which renders walking difficult, but after a few steps this feeling passes away and does not return whilst the patient is moving about.

These superficial sloughs are most troublesome, and, if left to themselves, continue unhealed for a long time. Europeans, Eurasians and natives are all affected with them, but new comers are most liable to be attacked. They are sometimes due to the irritation caused by sand.

In slight cases simple dressing or unctuous applications are sufficient, but as a rule the following plan is indicated. First, a cloth, constantly moistened with goulard lotion or cold water, must be kept on the part until the burning heat has subsided, subsequently, simple dressing is required, or, if the ulcers are obstinate, iodide of lead ointment or caustic lotion.

Fistula in Ano or *in Perinæo* occasionally occur, and may sometimes be traced to a fish diet. Fish or other small bones may be swallowed, and, if unable to pass the sphincter ani, may become detained at the rectum and set up irritation there; diarrhœa may discharge the irritating foreign substance, or, should it remain, inflammation and ulceration may ensue, terminating in a fistula.

(To be continued.)

Art. X.—*Fœticide.* By John Shortt, M.D., Zillah Surgeon, Chingleput.

In Southern India criminal abortion is not of infrequent occurrence, being in a great measure dependant on the rigorous laws of caste. So long as early marriages and the objection to the remarriage of widows continue to exist under the toleration of caste, fœticide will continue rampant in Southern India. The moral iniquity of this crime is considered unequal to the inflexibility of caste, or to the attendant disgrace thus entailed on the family. To cloak the failings of erring women, trampled down by caste ties and prejudices, relatives and connections either assist or connive at criminal abortion, which appears to have no place either in their religion or morals. The guilty individual to avoid the exposure of the birth of a child and the consequent expulsion from caste, which in every instance is rigorously carried out by her own family and friends, is glad to have recourse to any measure that would save her from such consequences. During the month of May last two cases of this nature were brought before the Criminal Courts at this station. I was called upon to examine the parties and give my evidence subsequently at Court. Believing that a full report of these trials may prove interesting, with the permission of the Judges, I give them below.

It is necessary to premise here that, in the eye of law, the distinctions of abortion, when occurring by the expulsion of the contents of the uterus before the sixth month, and that of premature labour, when the expulsion takes place between the sixth and ninth month, is inadmissible.

The term abortion in general implies the expulsion of the fœtus at any period of pregnancy, and is synonymous with the popular term miscarriage. Vide Taylor's Medical Jurisprudence, page 570, Chapter I. General Remarks, para. 1.

It is also necessary to bear in mind the frequency of natural, in contra-distinction to what is termed violent abortion. This necessity will appear from a question put by the Court, in case No. I, on this subject.

In this case, as far as the prisoner was concerned, there were no marks of violence traceable on her person, and the collective symptoms then present indicated a recent delivery, which the prisoner denied. The fœtus, if there was one, was not forthcoming, and the woman was acquitted, owing, no doubt, to the negligence of the Police, in not being able

to trace out the where-abouts of the fœtus; and in its absence the prisoner should not have been committed originally by the Police, or subsequently by the Sub-Magistrate. As to the guilt of the prisoner there can be no doubt, and I am sure the Principal Sudder Ameen was in his own mind convinced of the moral certainty of the guilt of the prisoner, but in the absence of the fœtus he could not do otherwise than acquit the prisoner, agreeably to the following extract from the Proceedings of Fouzdaree Udawlut, dated 15th July 1847.

"The Police shall be strictly prohibited from adopting any measures whatever against females accused or suspected of having procured their own miscarriages unless there shall have been actually found a fœtus fully formed, without which no charge of causing miscarriage, by whomsoever preferred, shall be entertained.

(Signed) T. H. Davidson,
Registrar."

Case No. 1.

A female named Kullamai, Æt. 35, of the Mudaliar caste, by trade a betel gardener, widow for the last six years, mother of four living children, the youngest about six years of age, was sent to the Civil Dispensary on the 15th of May 1861, at 7½ A. M., by Police Inspector Dorasawmi Mudaliar, with a request that I would examine the prisoner and furnish the necessary certificate to enable him to commit her to the Magistrate on a charge of Criminal Abortion. A certificate was granted, stating that there were on her person, then present, symptoms of recent delivery.

On the 28th of May 1861, I was called upon to give my evidence in the Principal Sudder Ameen's Court, which was as follows:—

"John Shortt, Esq., M.D., Zillah Surgeon of Chingleput, being duly sworn, deposeth as follows:—

On the 15th May 1861, the 1st prisoner Kullamai was sent to me for examination by Police Inspector Dorasawmi Mudaliar; on the same morning I examined and found that there were on her person symptoms of recent delivery, that is to say relaxation of the vulva and passages, with patulousness of the os uteri, and presence of lochial discharge; the breasts were distended and secreted milk on the slightest pressure; these, together with her anæmic appearance and sunken eyes, peculiar excitement of the pulse and dry skin, enabled me to come to the conclusion that either she had recently aborted, or had been delivered. The whole of the foregoing symptoms could not have existed unless she had either aborted or been delivered

recently. I am of opinion that such abortion or delivery must have occurred within six or seven days previous to the time of my examination.

(Signed) JOHN SHORTT, M.D.

Question by the Court.—Is there any difference in the symptoms attendant upon abortion happening accidentally from those following abortion procured designedly ?

Answer.—That depends upon the means resorted to for the purpose of procuring abortion. If violent local measures had been resorted to for the purpose of procuring abortion, so as to inflict serious injury on the uterus and the passages leading to it, such injury would indicate that violence had been exercised to effect abortion.

(Signed) JOHN SHORTT, M.D.

Sworn before me in open Court this 28th day of May 1861.

(Signed) T. ALAGHIAH,
Principal Sudder Ameen.

Criminal Case No. 41 of 1861.

MURDER.

Charge.—That the 1st prisoner Kullamai, a widow, on the night of the 11th May, 1861, was secretly delivered of a child at Vaiyávúr, Maduraitakum Talûq, which she did conceive by illicit intercourse, and did then and there maliciously kill the same, by some means unknown. The prisoners 2nd Muttu Mudali, 3rd Valliammai, and 4th Muttusawmi Chitti did aid and abet the 1st prisoner in the commission of the above act.

The prisoners throughout pleaded not guilty.

The prosecutor who, after living for a long time in the family of the 1st prisoner as her husband's nephew, was dismissed from her house, deposes that she had criminal intercourse with the 4th prisoner for some time previous to the commission of the crime now in question, conceived a child, and was far advanced in pregnancy,—and that he subsequently heard she was delivered of a child and killed it.

The 1st, 2nd, and 3rd witnesses depose to having seen the 1st, 2nd, and 3rd prisoners go to the house of the 4th prisoner, on the night of the 11th instant, at about 10 o'clock, the 3rd prisoner exclaiming "Aio appá." The 1st and 3rd witnesses add, the former, that he smelled assafœtida the next morning in the house of the 4th prisoner at 7 A. M., and the latter that he had previously observed, from the circumstances of her breasts and abdomen having been larger than usual, that she was pregnant. 3rd witness also deposes to the same effect as the 1st in respect of the smell of assafœtida in the 4th prisoner's house, at 7 A. M. on the 12th instant.

The 4th witness, an inhabitant of the 1st, 2nd, and 3rd prisoner's village, states he saw them on the night of the 11th go from their house towards Vaiyávur, the village of the 4th prisoner, that the 1st prisoner was pregnant seven or eight months. He had also heard

that first prisoner was sick of colic for four months, that the medicine which she had taken not having cured her disease, she used to go to Teruppro'ur pagoda.

The evidence of the 5th witness goes entirely in favour of first prisoner, for she, as a member of prisoner's family, swears 1st prisoner was not pregnant.

The 6th witness more or less makes the same denial as the 5th.

The 7th witness says that 1st prisoner was actually pregnant.

The 8th, 9th, and 10th witnesses deposed before the Sub-Magistrate that the breasts of the 1st prisoner secreted milk. The two last did not appear before the Criminal Court.

But still the point is deposed to by the 8th witness and the Zilla Surgeon who examined the woman in the Hospital at Chingleput.

Now the evidence of the prosecutor and his 3rd and 7th witnesses to the effect that the first prisoner was pregnant, and the testimony of the medical officer, that from the several symptoms which he observed on the person of that woman, he believed that she must necessarily have recently either aborted or been delivered, do not establish against her and the other prisoners the charge preferred against them, viz., killing a child of which 1st prisoner had been delivered.

For there is no evidence to show that 1st prisoner was delivered of a child, or that the prisoner did kill a child. The Zillah Surgeon swears that the symptoms which he observed on her person are peculiar as well to cases of abortion as to those of natural delivery, and that if violent local measures had been resorted to, then alone the difference between accidental abortion and abortion procured designedly could be discovered by the injury inflicted. Whether the woman was delivered or aborted, or aborted accidentally or designedly, there is nothing in the record to show; none of the witnesses can speak on the subject.

Hence I acquit the prisoners.

(Signed) T. Alaghiah,
Principal Sudder Ameen.

28*th May*, 1861."

With reference to the smell of assafœtida, to which the witnesses in this case refer, it frequently enters into the composition of native formulas for the production of abortion. Vide No. 3 of the Indian Annals of Medical Science for October 1854, page 395, under the head of Criminal Abortion. But much more commonly, it is in every day use among natives in child-bed, either alone or in combination with other drugs, to keep cold out of the system by its warm stimulant effect, and is believed to be a prophylactic in tetanus, and to aid in the free discharge of the lochia—as such it is held in great estimation, and freely used.

CASE NO. 2.—*Partus Abortus.*

Rungam, female, Æt. 17, caste Gentoo, trade labourer, trial prisoner.

Was sent to the Jail Hospital by the Principal Sudder Ameen for examination by me, in consequence of being connected with criminal case No. 40 of 1861, on the charge of having taken medicine wilfully to cause abortion.

The prisoner arrived at 2 P. M., and as she complained of being ill, was admitted a patient in Hospital.

23*rd May* 1861.—Complains of distension and pain in the breasts and region of the uterus. Is scarcely able to walk; countenance pale and expressive of pain and debility; eyes sunk; pulse excited, 98; tongue thickly furred; skin hot and dry; urine scanty, high coloured and scalding; bowels confined. On examining the breasts they were found to be hard and knotty, pressure causing a ready flow of milk. The external organs of generation and vagina were found moist and relaxed, os uteri open and admitting three fingers, lips tumefied and gaping, lochial discharge present. Both the os uteri and the uterine region extremely tender and painful to the touch.

With some reluctance at first, and slight prevarication subsequently, the patient gave the following account of herself: that she was married when five years old, and on attaining the 9th year of age, she became a widow by the death of her husband. About two years ago she attained puberty—and five days prior to her admission here a plug made of some medicine, the composition of which she does not know, was introduced into the vagina by a barber woman, and retained there for two days, without producing any effect, except some smarting. On the third morning, an old woman of the "Vellaichee" caste was called in. She brought the leaves and root of "*Chittramoolum*" (*Plumbago Zeylanica*) in equal quantities, which were made into a mass and a bolus of about ½ a pullam (℥ ss.) in weight was given her to take internally, which she did; about six hours after, on going to a tank in the neighbourhood to wash some of her dirty cloths, she felt some pain in the abdomen, followed soon by some bloody discharge per vaginam, which at first was thick and red (blood), subsequently on her return to her house the discharge continued, but was of a pale colour, and she was troubled with pains till the next morning, when, at about 4 A. M., she was delivered of a premature male fœtus, which she believes to have carried for about 5½

months. Under the administration of calomel and Dover's powder, aperients and salines, hot fomentations to the vulva and uterine region, warm water injections per vaginam and the application of the extract of belladonna to the breasts, she continued to improve, and was discharged cured on the 5th June 1861. On the 28th of May 1861, I had to appear before the Principal Sudder Ameen to give evidence as the preliminary examinations were conducted at his Court prior to transfer to the Sessions Court, where the following deposition was given :—

"John Shortt, Esq., M.D., Zillah Surgeon, Chingleput, being duly sworn, deposes as follows—

The 1st prisoner Rungam was sent to the Jail Hospital by the Principal Sudder Ameen for examination by me, on the 23rd May 1861. I found her suffering from pain in the uterine region, excited pulse, hot and dry skin, and on examining her person I found the passages leading to the womb relaxed, mouth of the uterus patulous, and the lochial discharge present; her breasts were distended and yielded a free secretion of milk on pressure. Her general appearance from her sunken eyes and anæmic countenance taken collectively, together with the other symptoms enabled me to conclude that she had been recently delivered.

Question by the Court.—Did you examine the fœtus ?

A.—Yes, a putrid mass conveyed in a chatty covered with ashes was brought to me at the same time for examination. I found the mass filled with maggots, on washing it carefully I was able to recognize the two arms and the remains of the spinal column. Judging from these I came to the conclusion that the fœtus was fully developed and was, I should say, between five and six months.

Question by the Mooity.—Can you tell from the state of the fœtus whether it was born alive or not ?

A.—No, not from the decomposed state it was in. A fœtus cannot carry on an independent existence whilst under six months.

(Signed) John Shortt, M. D.
Zillah Surgeon.

Sworn before me in open Court this 4th day of June 1861.

(Signed) E. B. Foord,
Acting Sessions Judge.

Sentence in sessions case No. 8 of 1861 on the Chingleput Calendar.

The Queen *vers.* 1, Rungam ; 2, Muttammai ; 3, Ramasawmy Nacken ; and 4, Ammaiammai.

Charge.—That the first prisoner, a widow, did, on the 17th May 1861, at Perunguzhi, Ootrimmaroor Division, Madurantagam Talook, by taking medicine, wilfully procure her own miscarriage of a fully formed fœtus, which she had conceived, and did then and there conceal it.

That the 2nd prisoner did aid and abet the 1st prisoner in the commission of the above crime by administering to her the leaves of a certain shrub called "Chittramulam," (Plumbago Zeylanica).

That 3rd and 4th prisoners did aid and abet the 1st and 2nd prisoners in the commission of the aforesaid crime, by instigating the 2nd prisoner to administer medicine to the 1st prisoner.

The prisoners from 1 to 4 plead not guilty.

The Moofty convicts the prisoners and declares them liable to ookoobut (punishment). It appears from the evidence that the 2nd witness (Taliar) having been informed by the 4th witness that the 1st prisoner had procured abortion, reported the circumstance to the 5th witness (Village Moonsiff) who, in company with 6th witness (Village Inspector) and the 2nd witness, went to the house of one Boomee Naidoo, where they saw the 3rd and 4th prisoners, and after questioning them about the matter, they (3rd and 4th prisoners) produced a fully formed fœtus from a heap of ashes, and admitted that 1st prisoner had been delivered of the same, and that they had procured the abortion by administering to her some medicine in order to save her from disgrace, as she was a widow. The statements of 1st, 3rd and 4th prisoners before the Police led to the subsequent apprehension of the 2nd prisoner.

4. The 1st prisoner confessed before the Sub-Magistrate that she was a widow, and had become pregnant from illicit intercourse with a man of her village, and that she had eaten some medicine administered to her by the 2nd prisoner, at the request of her father (the 3rd prisoner) and her aunt (4th prisoner) to procure abortion, and had mis-carried, in consequence of taking the same, the day after.

5. The 2nd prisoner confessed that, at the request of the 3rd and 4th prisoners, she administered the leaves of a plant called "Chittramoolum" to the 1st prisoner for the purpose of causing her to miscarry.

6. The 3rd and 4th prisoners confessed to having caused the 2nd prisoner to administer the medicine to the 1st prisoner for the purpose of procuring abortion, and she did accordingly miscarry and was delivered of the fœtus they produced before the 2nd, 5th, and 6th witnesses.

7. The 1st witness (Zillah Surgeon) deposes to having examined the 1st prisoner and to having found on her person unmistakable signs of recent delivery. He also examined the fœtus, and states that although partially decomposed, he was able to recognise the two arms and the remains of the spinal column, and can therefore state that it was fully developed, and it appeared to be between five and six months old.

8. The 2nd, 5th, and 6th witnesses depose to the fœtus having been produced before them by the 3rd and 4th prisoners, and that it had head, arms, &c., and that the 3rd and 4th prisoners confessed their guilt at the time.

9. The 3rd and 4th witnesses depose to the 3rd and 4th prisoners having asked them for some medicine to procure abortion, but state that they declined giving any. The 4th witness also deposes to having given information to the Taliar (2nd witness) that the 1st prisoner had miscarried.

10. The 7th and 8th witnesses depose to the fact of the 1st, 2nd, 3rd, and 4th prisoners having confessed their guilt before the Sub-Magistrate, and state the said confessions were made freely and voluntarily.

11. The 1st prisoner, in her defence, states that having a pain in her stomach, she told 4th witness, who gave her some medicine, that, afterwards, 2nd prisoner gave her some "green leaf medicine," after taking which she miscarried.

12. The 2nd prisoner states that 3rd prisoner asked her for some medicine to give to first prisoner, who was suffering from a pain in her stomach, and that she accordingly gave the medicine.

13. The 3rd prisoner simply denies his guilt.

14. The 4th prisoner states that 1st prisoner complained to her of the stoppage of her (1st prisoner's) monthly courses, and that the 4th witness gave her (1st prisoner) some medicine, and that she (4th prisoner) "knows nothing more."

15. I entertain no doubt whatever of the guilt of the prisoners. The evidence of the Zillah Surgeon clearly proves the recent delivery of the 1st prisoner, and that the fœtus she was delivered of was fully developed. The statements of 2nd, 5th, and 6th witnesses are conclusive as to the fact of the fœtus having been produced by the 3rd and 4th prisoners and to their immediate admission of their guilt. I see no reason whatever to doubt the truth of the prisoners' confessions before the Sub-Magistrate. The defence of the 1st, 2nd, and 4th prisoners before this Court amounts to an indirect admission of their guilt. I therefore concur with the Moofty, in convicting the prisoners and, considering that the 2nd, 3rd and 4th prisoners are the most guilty, sentence them to 3 years' imprisonment, with hard labour in irons as regards the 3rd prisoner, and with labour suitable to their sex as regards the 2nd and 4th prisoners. The 1st prisoner is a young woman, whose husband died before she attained the age of puberty, and it appears that she acted under the advice and persuasion of her father and aunt (the 3rd and 4th prisoners). I therefore think that she will be sufficiently punished by one year's imprisonment with labour suitable to her sex, and I sentence her accordingly under Clause 7, Section II, Regulations XV. of 1803.

(Signed) E. B. Foord,
Acty. Sessions Judge.

Chingleput, *Sessions Court, 5th June* 1861."

Both these cases presented themselves within a few days of each other, the symptoms were alike, except that Kulla-

mai, case No. 1, from being in the prime of life, robust make of body and the mother of several children, was better able to contend with the results of abortion, although criminally induced; in her the os uteri was open, admitting freely from three to four fingers, and the womb itself resembled a loose flabby bag, having no distinct form, the margins knotty and fissured, the lochia sanguineous, thick, and slimy, with a peculiar odour. Whereas in Rungam, case No. 2, she was young (quite a girl) with rather a delicate constitution, and conformation of body, and a primapara. The os uteri open, lips gaping and tumid, womb pear shaped, and readily definable into neck and body. No knots or fissures were apparent. When admitted she was evidently suffering from metritis.

Plumbago Zeylanica, or *Chittramoolum*, is a universal remedy in dysmenorrhœa, and equally so, as a means of producing abortion; there is perhaps scarcely a village in India where the use of this drug, as such, is not known. Its action is that of a powerful irritant, it is not only had recourse to as an internal remedy, but is more frequently applied externally. The plug said to have been used in the case of Rungam, I have no doubt contained Chittramoolam, and to it may be attributed the metritis that followed, for she acknowledges having felt some smarting pain when the plug was retained. It would be worth ascertaining whether this plant possesses any direct specific action over the uterus.

The fœtus sent for examination, in connection with this case, was a putrid mass, contained in an earthen chatty, covered with ashes and maggots. On carefully washing it I was able to make out the bones of the spinal column and both the arms from the shoulder joint downwards; these were the only parts free from decomposition and were in their normal state. The skin was entire, firm, and slightly fibrous, and the nails at the finger ends distinct, this, together what the prisoner stated, convinced me that its age could not exceed five and half months.

The question put by the Moofty, or Mahomedan law officer, I could not satisfactorily answer, owing to the decomposed state in which the fœtus was presented for examination; even had I had the opportunity of examining it earlier I doubt whether I should have been able to return a satisfactory answer. I stated that, in accordance with medical authority, a child was not considered viable prior to the sixth month of utero-gestation. Although this is not recognized

in law, some medical authorities give one or two isolated and somewhat doubtful cases where, children born prior to the sixth month, have survived their birth for some short time. Vide Guy's Forensic Medicine, page 173, the Jardine and other cases. Other authorities, among whom I may name Churchill, Ramsbotham, Clay, &c., state that a child of seven month is generally viable. I know of an instance where a male child of 6½ months had survived his birth, and when seen by me in January 1860, has attained his sixth year. The boy, although of very delicate conformation, was in the enjoyment of excellent health. The mother of the boy, a lady of much intelligence, through whose persevering energy and care, the life of this child was preserved, by keeping him for the first month or six weeks wrapped up in cotton and flannels and in bed next her to preserve and maintain the necessary warmth. This lady is the mother of seven or eight other children, six of whom are alive; her testimony with reference to the time may be depended on.

I have seen three other children, two of seven, and one of eight months, the two former when seen by me were very delicate, as for the latter I never met with a stronger or more healthy boy. He is now in his twelfth year. This contradicts the popular saying that whilst a seven months child lives, that of eight invariably dies.

Chingleput, *June*, 1861.

Art. XI.—*A Brief Historical Sketch of the Madras Leper Hospital, with some Notices of Leprosy as it is seen in that Institution.* By W. J. van-Someren, M.D., Surgeon, 1st District.

For about half a century there has existed in Madras a poor-house, called the Monegar Choultry, with an infirmary attached to it. Into the former lepers used to be admitted together with healthy paupers, and their number had risen to *forty* in January 1813. At that time their presence among, and consequent association with, many poor people who were sound and well, made the latter apprehensive of infection, and the fears of these were shared by the Superintendent and Members of the Managing Committee, under the very general impression that leprosy is a contagious disease. This led to a request being forwarded, on the 20th March,

1813, to the then Governor, Sir George Barlow, in Council, that "a separate building may be appropriated for this class of patients, in consequence of the inconveniences resulting from their intermixture with other persons in the asylum." As the application did not excite any attention, nor elicit any reply from Government, the Committee, on the 16th July following, thus wrote :—

"We feel it our duty under the emergency of the case, again to bring the subject before your Excellency in Council. From a report made to us by the immediate Superintendent of the charities, the increased number of these sick persons, viz., twenty-eight men and twenty-three women, exclusive of children, are without accommodation to keep them distinct and separate from the other paupers—the infirmary being full with fifty-one patients besides the lepers. The consequence is that the men, women, and children above alluded to, associate with the paupers generally, not only exposing the latter to infection, but the Superintendent further states, that with all the care that can be taken to preserve cleanliness, the choultry is becoming offensive from this number of sick persons, and many of them in the worst possible state of disease. Under the very distressing circumstances we have represented, we feel assured your Excellency in Council will excuse our urgency on the occasion in soliciting that some separate buildings may be appropriated with the least inconvenient delay for the reception of the lepers, &c."

The answer to this earnest representation shows that, whatever may have been the popular belief regarding the contagiousness of leprosy, those in high places did not entertain any idea that the disease was communicable by one individual to another. The Secretary to Government of that day, Mr. D. Hill, in his reply of the 27th July, 1813, to the Committee for managing the Monegar Choultry and Native Infirmary, after stating that the lepers had probably entered the institution with the expectation of obtaining a cure for their disease, which appeared to be incurable, adds :—"The Governor in Council thinks it right that the truth should be distinctly stated to them, and desirable that they should not only be allowed but encouraged to return to their private homes. Under the same view of the subject, the Governor in Council thinks that no more lepers should be admitted into the infirmary." As, however, some of those already admitted might wish to continue where they were, even though they could not hope for complete recovery, Government acknowledged the necessity for providing them with separate accommodation, and authorised the Committee to make the best and least expensive arrangement in their power

for the purpose in question. The result of this official communication was a considerable reduction in the number of lepers in the choultry. Only twenty-six remained, and these were removed about the end of September, 1813, into a temporary building, provided with an establishment of its own, which constituted the first leper hospital, or lazaretto, in this Presidency town.*

But the Institution does not appear to have been appropriated to its special purpose for any long period. On the 30th November, 1813, and only about nine weeks subsequent to its occupancy by the lepers, it was suggested by Dr. Dalton, Medical Officer of the Native Infirmary,—and his proposition was supported by the Managing Committee,—that all but venereal patients should be removed from the infirmary "into the place lately constructed as a hospital for lepers." This suggestion was evidently carried into effect, for we find the Committee, on the 1st August, 1815, after the lapse of nearly two years, again appealing to Government in behalf of those stricken with leprosy. Mr. Hugh Elliott was then Governor of Madras, and to him the following letter was addressed :—

"HONORABLE SIR,—We beg leave to lay before your honor in Council that the lepers patients at this place were relieved by medical attendance in the Monegar Choultry and there maintained on account of Government. In the year 1813, an order was received from Government that they should be discharged, as it seemed an established opinion that there was no good ground for an expectation that their disease could be cured, and that under the same view of the subject no more lepers should be admitted into the infirmary. Subsequent to that period those poor wretches have made their appearance in the public roads and streets in the town and vicinity of Madras to beg alms for their relief, being reduced to the same misery they were suffering under before their admittance into the infirmary. They were then left to fall to pieces and to be loathsome to themselves and to others, whereas by their admission into the charity, and the medical attendance afforded to them, the dreadful ulcers of the disease were healed, the progress of joints falling off was stopped, and sensation restored, where there had been no feeling,

* There are but two other such institutions in Southern India. The oldest is that at Palliport, near Cochin. It was built by the Dutch in 1728, and is now under the charge of the Civil Surgeon of Cochin. Mr. Day, the present Civil Surgeon at that station, has published in the second number of this journal a very interesting paper on Leprosy as it occurs there. The most recent lazar house is that lately instituted in Bangalore and placed under the superintendence of the Commissioner's Surgeon.

so that the unhappy sufferers were relieved into that degree, as to render their existence comfortable to themselves and innoxious to others.

"In consideration of these circumstances we are induced to represent the very great hardship those helpless objects are now labouring under without any provision for their support, to the humane and benevolent notice of your Honor in Council, and humbly to submit for your sanction that a small piece of ground be purchased or rented in the vicinity of the choultry, and a bungalow of permanent materials erected thereon, for the admittance of the lepers, and that they may be fed and clothed and medical attendance rendered them as formerly, either from the funds of the charity or from such other source, as your Honor in Council may deem most proper.

We have the honor to be, &c.

(Signed) by the Members of the Managing Committee.

"MADRAS, MONEGAR CHOULTRY, 1*st August* 1815."

The reply was both a speedy and a favourable one. It conveyed authority for the purchase of ground and the erection of a hospital at the expense of Government, and the Committee set themselves to the good work so promptly that by the 14th April, 1816, the building was completed, at an expense of nine hundred and eighty-three star pagodas, including the cost of the ground on which it was situated.

The institution thus provided by the munificent liberality of Government, however, did not attract all those for whose benefit and relief it was established. A considerable number of lepers, and among them some most grievously afflicted with disease, preferred begging in the lanes and streets of the city, to immuring themselves in a hospital where they could command good food and clothing, and medical attendance to boot. As they did not voluntarily become patients in the lazaretto, and, in their efforts to awaken commiseration and obtain alms, they more frequently excited the disgust of all passing on the highways which they infested, the Managing Committee endeavoured about the close of 1816 to compel them to abandon the public thoroughfares. The Police Regulations were at that time undergoing revision, and the Managers of the Monegar Choultry and its attached charities, suggested to Government, that some legislative provision should be made to enable the magistracy to arrest and consign to hospital all "lepers exposing themselves to gather alms on the highways," whom either their friends, or their fellow-villagers,—if they had come from the country—would not take in charge and engage to prevent their again becoming beggars in the streets of the Presi-

dency. The result of this application to authority I have not been able to discover on the records of the combined institutions, but it is a remarkable coincidence that in the very first Surgeon's Report* extant in the hospital, after a wide gap of about twenty-four years, during which the history of the institution is almost a blank, the Medical Officer in charge, Surgeon Lawder, thus writes:—

"Many of the persons who die in the Leper Hospital are taken from the streets in a sinking state, consequent on want, (generally by the Police peons), and the number of sad objects from this complaint, who are to be met about the streets, is distressing to behold. Such objects the Police are in the habit of sending to the hospital, and hitherto I considered it my duty to retain them as well from motives of humanity, as from a wish to seclude them from public view, and also to check the extension of the disease, which has for some years become very apparent at Madras. The necessity of separating lepers from the community at large, has been felt in all countries, where the disease prevails from the earliest ages, and by no nation are such regulations more strongly enforced than our own at Malta, the Cape of Good Hope, and the Mauritius. As these views, however, are not entertained by the Medical Board or Government, in compliance with the Minutes of Consultation by Government, in the Public Department, dated 22nd December, 1840, I shall in future decline receiving persons sent to hospital by the Police under such circumstances, unless they are found willing to remain in hospital on examining them; the necessity of adopting this measure I cannot, however, help regretting, as I feel that the lives of many brought to the hospital by the Police under such circumstances are saved, who will now fall a sacrifice to their own obstinacy in declining to remain in hospital, particularly as I generally find the worst, and most disgusting cases to behold, are those who are most anxious to remain at large."

The foregoing extract not only betrays the laxity of our laws in permitting men and women, affected with the most loathsome of diseases, to render themselves a positive nuisance to the public at large, but it also bears testimony to the great prevalence of leprosy in this city twenty years ago. During that interval I doubt if the malady has either increased or diminished in the frequency of its occurrence. I have appended a table, marked No. I., shewing the number of cases admitted into, and discharged from, hospital, and also the daily average number of sick, in each year since 1840, and although it discovers the fact that a larger number of

* For the second half year of 1840.

lepers have of late years become inmates of the hospital, I am disposed to think that this difference has arisen, rather from the institution being better appreciated, than from the disease being more prevalent than formerly. I am not aware that there are any laws in operation at the present time to prevent lepers roaming at large through the city, and, *in formâ pauperis*, plying a good trade at craving alms in our thoroughfares; but occasionally the Police bring such parties into hospital, and both motives of humanity and a regard to decency combine to dictate the expediency of their instant admission!

Allusion has been made to a long period of about twenty-four years, during which very little of the history of the lazaretto can be gleaned from the records of the charities. In fact, besides an application in May, 1822, for the enlargement of the leper-hospital,—a Government grant (on the 3rd July, 1839) of two thousand rupees to the Managing Committee, partly on account of the transferred lepers,—and Surgeon Lawder's struggle to obtain a hospital commodious enough for the leprous patients under his charge, there is literally nothing of interest that I can discover. That Mr. Lawder's efforts were successful is manifest in his report to which special reference has already been made, and from which we further learn that the present hospital was opened "on the 1st July, 1840, for the reception of patients (of both sexes)—whether Indo-Britons or Natives, suffering from leprosy, and agreeably to the orders of Government, its inmates are fed and clothed by Government, and its interior economy is wholly unconnected with the Native Infirmary." The lazaretto then became a purely Government institution, and the change was in every way calculated to promote its stability, its efficiency, and its usefulness.

The increasing number of applicants for admission in 1856 and subsequent years, rendered enlargement of the hospital necessary; and accordingly two new blocks of buildings, each containing two wards, were added during the last year. The institution has now eleven wards, capable of accommodating thirty-one females in three wards, and a hundred males in the remaining eight,—the regulated distance between every two beds being at least three feet. Europeans and East Indians tenant four wards,—two small ones sufficing for the females, and two large for the males. Not only is the whole hospital shut in by a high dead wall, but the different blocks of buildings which compose it are separated from one

another by the same. This must be regarded as a radical defect in such an institution, inasmuch as it not only operates as a barrier to the thorough ventilation of the wards, but by giving the hospital the aspect of a prison, serves to deter many from seeking an asylum within its precincts. All such institutions should be enclosed by a dwarf wall, surmounted by iron railings.

The hospital establishment is as follows :—

Assistant Apothecary	1	Ward Coolies	3
Purveyor	1	Cooly Women	2
Peons	2	Toties	2
Cooks	2	Washerman	1

But while such is the authorised establishment, it has of late years rarely been the actual one. The hospital has, only occasionally and at long intervals, had the services of an Assistant Apothecary ; and not only is such a subordinate indispensable, but he should always be one of the most intelligent and energetic of his class. No ordinary Assistant Apothecary and no Native Dresser can act efficiently and justly by the many patients in a special hospital like this, nor can either keep the books with that care and regularity which are essential to their utility as statistical records.

The dietary for European and Eurasian patients is that laid down for European hospitals, and both it and the diet-table for natives are given in Tables Nos. II. and III. of the Appendix. As this paper is intended for the information of Professor Virchow of Berlin, in reply to the Appeal he put forth last year for information on the History of Leprosy, I have deemed it best to add these tables, seeing that the subject of diet is closely connected with the best means of treating the disease in question. This point, however, will be discussed more at large in a subsequent part of the present article, and I would merely advert here to the pathological fact, that the condition of the blood in lepers assimilates to that determined by a vegetable diet, which "tends to lower the whole amount of solid matter, occasioning a marked reduction in the corpuscles, while it seems rather to increase the albumen ; thus showing that the decrease in the corpuscles is not due to a deficiency in the azotised pabulum, but depends on some other condition."

For the admission of patients into hospital no particular forms or preliminaries require to be observed. Every leper who seeks an entrance, is at once received, and as many as

the Police convey thither are admitted without delay. While the door of the lazaretto is thus thrown wide open to all who wish to become its inmates, I regret to say that many of those who do so, weary of the monotony, rebel against the restraints and discipline of the hospital, and seek their discharge after periods of various duration. Not unfrequently, however, these very patients seek admittance again on their disease becoming aggravated, and this circumstance is worth noting, as it affects the number of admissions into hospital. Each and every such admission is not of course a different case, and the actual number of lepers treated, is by no means represented by the number of those who have been admitted into the institution.

By way of lessening the tedium of hospital life, and reconciling the patients to its restraints, they are encouraged to employ themselves in gardening, for which the premises furnish ample space and opportunities. Both fruits and vegetables are cultivated, and the proceeds of their sale are appropriated by the patients themselves. In this way the minds of the poor invalids are engaged, and their bodies exercised to their manifest advantage, while the grounds of the hospital are well tilled and tended, and their appearance proportionately improved.

Both *Lepra tuberculosa* and *Lepra anæsthetica*, the two principal forms of leprosy, occur in Southern India. Both of them are frequently found complicated with other cutaneous diseases, among which *Eczema*, *Scabies*, and *Ichthyosis* are the most common. Both forms come in time to affect the joints of the extremities, and their progress is marked by mutilation. Sometimes by the ulcerative process, and at others by interstitial absorption, and occasionally by the combination of both, the phalanges disappear, and both feet and hands are reduced to unsightly and distorted stumps. In some instances even larger articulations become involved in morbid action, and a whole foot may be found separating by ulceration through the ancle-joint.

It is beyond the scope of the present paper to enter at length into the semeiology of this formidable disease, and to do so, indeed, would be a work of supererogation. Not only has Mr. Day's recent paper on Elephantiasis Græcorum rendered it unnecessary, but the subject has been both ably and fully treated by M. M. Danielssen and Boeck in their admirable *Traité de la Spedalskhed;* and our lepers in this country have the features and progress of their disease as faithfully

delineated (allowance being made for the difference of colour in the patient's skin) in that work, as if they had themselves been the subjects of observation and treatment in St. George's hospital at Bergen. The deformity of the features,—subsidence of the nose,—alteration in the expression of the countenance,—perversion in the nutrition of the soft textures of the face and within the mouth and nares,—involvement of the eyes in disease and consequent impairment of vision in both forms of the disorder,—the falling off of the hair in the *tubercular*, and occasional deafness which attends the *anæsthetic* variety,—are all to be seen here. In like manner also those discolorations, to which the names of *Morphœa nigra* and *Morphœa alba* have been applied, are met with. Taking the cue from the authors of the *Traité de la Spedalskhed*, I understand, by the former of these appellations, the large irregular spots, found in the early stages of tubercular leprosy, which subsequently assume a dark brown tint verging on black, and present a somewhat rough surface, but cause no inconvenience. While the designation, *Morphœa alba*, is attached to white spots which are either the somewhat depressed glistening cicatrices, of impaired sensibility, left by the healing over of ulcers, which have followed the bullæ (*pemphigus*) that characterise an early stage of *anæsthetic* leprosy; or they are white and very irregular, slightly desquamative spots, of various sizes, on the same level as the skin, which attract the attention of the patient by a gentle irritation, although this is only a subjective sensation co-existing with diminished objective sensibility. I am, however, by no means certain that *Morphœa alba* can be regarded as a phenomenon belonging to *Lepra anæsthetica* exclusively, for I have seen spots left by the healed ulcers of the tubercular form so very similar in appearance and character, that it would be difficult, if not impossible, to distinguish them.

In common with others, I have observed that though *hyperæsthesia* may characterise the discolored spots which usher in *tubercular* leprosy, yet, at a later period of the disease, absence of all sensation, complete *anæsthesia* in fact, constitutes a prominent symptom of this form of the disease also. This feature, however, seems limited to the extremities, and possibly just those spots on the face and trunk where discoloration and the tubercular deposit occur, but there are four patients in hospital at present, in none of whom has the disease been existent less than three months, and in all

of whom it has passed into the distinctly tubercular stage without the least impairment of sensation. Such exceptional examples clearly demonstrate the distinctness of the two principal forms of leprosy, and justify the division as a perfectly natural one. There are at present seventy-five lepers in hospital, in *forty-five* of whom the disease is of the *anæsthetic* form, and in *eighteen* it is *tubercular*. In *twelve* it is *complicated*.

In view of the particular constitution of the blood in leprosy, I was anxious to discover if the urine is albuminous in these cases, and, at my request, the able and efficient Apothecary of the Native Infirmary, Mr. Grove, carried out a series of investigations, of which the following are the results. I may premise that the urine first passed in the morning—the *urina sanguinis*—was always made the subject of experiment.

The subjoined tabular form is the best means of showing the specific gravity of the fluid in the different patients.

		1000 to 1005	1005 to 1010	1010 to 1015	1015 to 1020	1020 to 1025
Males.....	European and East Indians..	0	5	2	1	0
	Natives	9	26	11	1	1
Females..	European and East Indians..	1	3	3	0	1
	Natives	4	4	3	0	0

In estimating from the foregoing figures the proportion of solid constituents of the urine, it must be recollected that the temperature of the fluid was high, being about that of the atmosphere in a tropical clime, and during the hot season, when the examination was made— *i. e.* about 86° Fahrenheit; but with every allowance for this fact, the specific gravities must strike every one as being in the large majority of cases extraordinarily low.

The reaction of the urine was acid in six patients; alkaline in nine; and neutral in the remainder. In no less than nineteen cases it was found albuminous—the proportion being nearly one in four. The deposit was small in seventeen of the number, and large in only two.

In connection with the circulation, a very general symptom demands notice—I allude to the frequency of the pulse. In *fifty-four* of our seventy-five patients, the heart's

beats range between *eighty* and *one hundred and thirty-eight.*

Does the disease occur sporadically or endemically? This is both an interesting and important question, and my enquiries as well as personal observations incline me to regard its occurrence as sporadic; but in the absence of extended and precise data, on the authority of which alone a safe conclusion can be arrived at, I feel qualified only to express my impressions on this subject, to be received for as much as they are worth.

In my remarks on the Etiology of the disease, I shall treat of the several supposed causes in the order mentioned by Professor Virchow, in the Appeal already referred to;—and with reference to *inheritance* as one of these causes, the appended Table No. IV., drawn up by Surgeon Major Porteous, while he had charge of this institution, will be found to contain valuable information. The most salient and important facts shown by that document are the following:—

1st. Of thirty-one lepers, the mothers of but two were affected with the disease. In no case was the father of any tainted. Consequently, in only two cases was the taint inherited, and it was acquired in twenty-nine.

2nd. These thirty-one lepers had no less than one hundred and eleven brothers and sisters who were not leprous.

3rd. In the families of three of the thirty-one, there was one leper besides the parents themselves. And besides those affected with the disease, there were in two of the families four and three children respectively.

4th. Thirteen of the thirty-one lepers were married and had forty-six children among them, in none of whom had the disease betrayed itself. None of the parents of these thirteen was affected. The disease was not in these cases communicated by diseased parents to their children, nor did these parents inherit it from theirs, so that here also the theory of inheritance breaks down.

5th. It is remarkable how much more the malady affects the male sex than the female. Of eighty-nine of the former, twenty-nine were tainted; and of fifty-six of the latter, only five were leprous.

To the foregoing facts I may add that but one case has come under my own observation, in which a leprous parent (a mother) had two leprous children, and this only corroborates the conclusion to which Mr. Porteous' table leads us, that inheritance does not constitute a strong predisposition to the disease, even if it do so at all. The exceptions indeed

are so few that it becomes a question when parents and children are really affected, whether the disease is not the result of both being subjected to the same external circumstances favorable to the development of the disease, instead of being attributable in the offspring to a taint inherited from their parents.

Surgeon Lawder, in the report from which I have already made some excerpta, thus strongly expresses himself regarding the Etiology of Leprosy :—"That this disease is not only hereditary, but also to a certain extent contagious, cannot be doubted." His assertion is not supported by any given statistical observations, and in the absence of such it must be regarded as a mere statement of opinion that may, or may not, have a solid foundation in fact. It certainly is not borne out by the following table, prepared by Surgeon Major Porteous in 1855.

List of Servants with period in Employ.

NAMES.	Description.	How long in the Leper Hospital.	REMARKS.
Adoomaly	Ward Cooly.	About 14 years.	
Chinnappien	Do.	„ 4 „	
Ramadoo	Do.	„ 8 „	
Rungavoo	Cooly Woman.	„ 10 „	
Veeree	Do.	„ 2 „	Succeeded her mother who served for 10 years, and died of cholera.
Venketygamu	Toty.	„ 3 „	Succeeded his uncle who served 11 years, died of dysentery.
Lutchee	Do.	„ 4 „	
Venketrajoo	Cook.	„ 7 „	
Chinnien	Do.	„ 2 „	

Although my experience in the hospital does not warrant me in giving such a *carte blanche* to the whole establishment, yet it goes far towards proving how little contagion has to do with the production of the disease. One of the cooks in the lazaretto has certainly betrayed unmistakeable evidences of the malady, and so also has one of the peons ; but these are both servants who come comparatively little in contact with the sick, while the ward-coolies and the scavengers who have had most to do with them, dressing their sores and removing their *execreta*, have enjoyed a complete immunity from the disease. Under these qualifying

circumstances, it would appear more correct to regard the malady in the cook and peon as originating in other causes, so that these cases do not constitute exceptions to the general rule, established by the observations of Mr. Porteous and others who have had charge of the Madras Leper-hospital, that leprosy is not a contagious disease. There is no record of any of the Medical officers, connected with the lazaretto, having become affected with the disorder, nor have I heard of its ever having attacked the attendants of those who in private families were its victims.

The operation of climate in the development of leprosy is certainly not clear, and probably problematical. Not only do we know that the disease prevails in temperate regions, but even within the tropics it is found under very different climatic conditions. On the elevated and cool plateau of Mysore, its frequency renders a lazaretto necessary in Bangalore, while along both the East and West littoral lines of the Indian peninsula, and in the insular climate of the Mauritius, its prevalence serves to make it a scourge.

It is a favorite idea with many that certain kinds of food develope the disease, but we have as yet attained to no precise and certain data on this point. Mr. W. G. Davidson, a former Surgeon of this hospital, more than sixteen years ago thus wrote :—"This disease would appear to originate in the use of mouldy grain and other unwholesome food as semi-putrid fish or animal food,—want of the use of salt and of vegetables." Without endorsing this opinion in its entirety—an opinion based on unrecorded data—I cannot but attach considerable weight to a part of it. In view of the Pathology of Leprosy, as this has been elucidated by the researches of M. M. Boeck and Danielssen, it is impossible to resist the conviction that errors in diet and regimen, as well as other violations of the general laws of health, have much to do with the production of this formidable disorder. The subject is an interesting one, having an important practical bearing on treatment, and it will not therefore be out of place to devote a few lines to its consideration.

That this is a blood-disease appears to be fully made out by the above-named investigators. The disease, however, consists not in the circulation of a toxic element, such as the potential poison of any zymotic disease, or even such a *materies morbi* as lithic acid or urea, but the normal proportions of the principal constituents of the blood are altered, and

probably some of these constituents are ill-elaborated. For example, the proportion of albuminous materials is largely increased, while that of the red-corpuscles is notably diminished, and as the latter are formed at the expense of the former, it is difficult to reconcile this diminution of the red-discs with a super-abundance of well-elaborated albumen in the vital fluid. It is well known that in certain vessels of the body this nitrogenous compound exists in the crude and imperfect form of *albuminose*, and the idea has been broached by pathologists that when found in the renal excretion, its presence is due to the fact that, in this ill elaborated form, it easily transudes the tissues of the kidneys. If the suggestion be true, the facile escape of albuminous matter into the cutaneous and mucous tissues, so as to form the tubercular elevations characteristic of *tubercular leprosy*, and its exudation into the serous tissue of the arachnoid membrane covering the spinal cord in the *anæsthetic* form of the disease, are explicable in the same way, and our therapeutics should be directed towards the removal of the *dyscrasia* which characterises the blood. But what are the conditions calculated to develope this *dyscrasia?* Poverty, with all its attendant deprivations and hardships—food, defective in quality rather than quantity—over-crowding—impure air—want of cleanliness—indeed, everything that is a violation of hygienic laws, will contribute to such a depravation of the circulating fluid; and this view of the etiology of leprosy is borne out by the fact that it appears to be a disease principally affecting people in a certain, and that not an advanced, stage of civilisation. In Great Britain, for instance, it was so common between the *twelfth* and *sixteenth* centuries, that there were no less than one hundred and eleven lazarettoes in the country during that period; but as the people, under a flourishing commerce and an advancing intelligence, became more wealthy and more wise, the disease became less and less prevalent, and at the present time there is not a single leper hospital throughout the length and breadth of the land. When the position of people in this country has become similarly elevated, it may reasonably be hoped that they also will enjoy an equal immunity from the disease; but in the meanwhile our knowledge of its causation and its pathology generally, points to a very different course of treatment from that which used to be in vogue, and is even still practised by many. The hygienic measures which are indicated as the best prophylactics against the development of leprosy,

must also play an important part in its therapeutics, and instead of running the gauntlet, in the true spirit of empiricism, through the catalogue of so-called specifics in its treatment, we should base our practice on the plain principles of a correct pathology.

The experience of most of the Surgeons in this institution for several years past attests the worthlessness of some, and positive injuriousness of others, of the supposed specifics which have been recommended for leprosy, and it is not a little interesting to read the records of successive essays made with different drugs in the hope that they would act as charms in the cure of the disease.

In 1813 Surgeon Dalton wrote to the Superintendent of the Native Asylum in the following self-gratulatory terms regarding the success of a compound, to the virtues of which he attached considerable value :—

"I trust it will not be forgotten that when I first received charge of the sick in the Native Asylum and Infirmary, that the unfortunate leprous paupers were left to fall to pieces, as well as to be loathsome to themselves, and to all the unfortunate blind, lame and decrepid, who were subsisted in that charity; without any attempt having been made to relieve them—these evils for upwards of two years *have disappeared* as the lepers now are not more disgusting to the sight or offensive to the smell than the other sick, or as much so as the venereal patients, and I return thanks to Almighty God for having made me an humble instrument, if not in curing them, in affording the greatest relief."

The reader will be surprised to learn that that letter was written after a fair trial had been given to the asserted remedy by Mr. Dalton himself, under the supervision of a Committee appointed to test its efficacy, and after that Committee had decided against the combination as more dangerous to the leper's life than remedial in his disease. What the compound actually was, the records do not show, but the perusal of the following curious document leaves little room for doubt that a mercurial preparation, probably the Bichloride of Mercury, was its active ingredient :—

"Mr. Dalton's directions given in writing for the guidance of the Surgeon of the General Hospital, during the treatment of the leprous patients.

The accompanying box contains 500 pills, of which one is to be taken night and morning, until the mouth becomes sore and the gums spongy—when the pills are to be discontinued, and the mouth

frequently washed, and the throat gargled, with the following mixture.

Alum 3 i. ; Mel. Opiat. 3 i. ; Dococt. Cort. Peruv. ℔ i. M.

When the soreness of the mouth is completely gone off, the pills to be repeated as before, until the same effect is produced, when they are again to be discontinued and the mixture to be used.

This system is to be observed until every symptom of leprosy disappears.

Before the patient begins to take the pills, it will be advisable to give a gentle laxative as a preparation, and should the patient complain of costiveness during the period of taking the pills, a dose of castor oil, or any other equally mild purgative, may be given, and the pills need only be discontinued for a day or two.

The diet of the patient should be confined to food of easy digestion—vegetables, pork, and fish should not be given on any consideration, and whatever is eaten should not be too highly spiced.

Should the patient have any excoriations on the body, legs, &c., the parts affected to be rubbed with a little Ung. Alum. Camphoratum (R. Ung. Albi. ℔ i., Camphoræ 3 ii. M.) twice a day—and should the patient have any ulcers, the ulcerated parts to be well cleansed with the following lotion—

Take of Madeira Wine ℔ i.

The urine of a healthy person ℔. ii. M.

After the ulcers have been cleansed with the above they are to be dressed twice a day with Balsam of Copaiba.

The patient is to be clothed so that he may always, if possible, be in a perspirable state, as it is very desirable that the medicine should operate this way.

During the period the patient is taking the pills, the usual ablutions, such as washing head, should be dispensed with, nor is the body or head *on any account* to be rubbed with oil, as I have seen a severe flux and fever brought on by this operation.

Should the Balsam Copaiba be found to be of none effect in healing the ulcers, they may be dressed with a mild solution of blue stone in water.

The foregoing instructions having been observed in the Native Infirmary, every possible success has hitherto attended my treatment of leprosy."

The combination of Madeira and urine in equal parts as a *cleansing lotion*, does not enhance our favorable opinion of Mr. Dalton's own ideas of cleanliness ; and it is not to be wondered at, that the poor patients subjected to frequently repeated courses of mercurialisation and ptyalism were hurried to their graves, while Mr. Dalton was vainly endea-

vouring to cure their disease. His was indeed worse than the case of the French practitioner who, if he killed his patient, had certainly the small and cold comfort of seeing that all trace of disease had disappeared, while the sick man was *in extremis*,—but our expert would have had the mortification of feeling, had he had the discernment to see, that his poor patients were still lepers when they died of his medicine.

Since Mr. Dalton's time a variety of drugs have been tried in this hospital, but not a single one of them has proved a real remedy. The following list contains most of them :—

1. The Asiatic Pill, consisting of Protoxide of Arsenic, gr. $\frac{1}{16}$; Powdered Root of Calotropis Gigantea gr. iiss. and some Black-pepper.
2. Fowler's Solution.
3. Iodide of Arsenic.
4. Donovan's Solution.
5. Hydrocotyle Nigra.
6. Chowl Moogree Oil.
7. Mercurial Pills.

One or two of these were inert, and if they did the patient no good, did him no harm. Others were positively noxious, acting as irritant poisons, and only served to reduce the strength and powers of resistance to disease in some of those, who were unfortunate enough to be subjected to their operation.

The following are the matured opinions of those Medical officers whose practice and experience here enable them to speak with authority on this subject.

Surgeon Lawder wrote thus in 1841.—"In the treatment of leprosy, I have tried almost all the remedies recommended by the different medical authors, I am sorry to say without any hope of cure; and from what I have seen of the disease during the last sixteen years, I have no doubt of its being incurable. At the same time, I believe many of its most urgent symptoms are capable of being mitigated by medical treatment, and the lives of the unfortunate sufferers in a great measure rendered comfortable in comparison of what they otherwise would be."

After mentioning the intestinal and cutaneous irritation caused by the use of the Asiatic Pill, Surgeon Davidson states :—"When this irritation subsided, however, the patient

appeared to be a good deal better—skin much less unhealthy looking than before these medicines were given, but the improvement did not seem to be very considerable; and irritating the bowels and skin seems very objectionable in a disease in which there is generally a tendency to ulcerative process in both the skin and the bowels. There appears to be a general fading of the system."

Surgeon Evans' Report for 1847 contains this paragraph:—"The lepers for the most part have continued in comparatively good general health. I regret I cannot notify any encouraging improvement in the leprous disease itself from the medicines employed. In one or two cases, however, lately admitted, Hydriodate of Potass seems to have produced at least temporary benefit."

Assistant Surgeon Paul says:—"In 1855 the therapeutic virtues of the Hydrocotyle and Chowl Moogree received a fair trial at the hands of Dr. Porteous, and they were found to produce no amelioration whatever of the disease. This year no specific has been exhibited, and the patients have had little medicine beyond an occasional purgative, or such medicines as were called for in intercurrent inflammatory attacks. In a few, however, I should state, Donovan's Solution in small doses was given for long periods, but I cannot say with marked or material benefit. The chief benefits derived by the inmates of the institution are those arising from cleanliness which, with good and regular food, has a marked influence on the disease. Miserable objects in every degree of loathsome wretchedness are admitted covered with, or rather incrusted in, filth—indeed many had not washed for years under the belief that ablution aggravates the disease, but after the plentiful use of soap and cold water daily for a time, their sores heal, their skin gets more healthy, and they even gain flesh. Although their present condition is thus rendered more bearable, the progress of the disease is no way arrested."

Surgeon Mudge "can confirm the previous statements of temporary benefit derived from cleanliness and daily ablution, with good diet and attention to the regularity of the secretions,—but beyond this remedial measures are of no avail."

The testimony of all these Medical officers not only settles the inutility of drugs from which great benefit was expected, but it shows that considerable improvement in the general

physical condition of the patients may be secured by placing them in favorable hygienic conditions. Good food, pure air, a rigid attention to cleanliness, and a certain amount of bodily exercise, certainly contribute more than anything else to ameliorate the health of lepers;—and if the Materia Medica be indented on, it should be for such medicines as are calculated to improve the quality of the blood. Chalybeates, the preparations of Iodine and Iron, and Cod Liver Oil promise the most benefit as internal remedies; while anointing the dry and fissured skin with emollient oils, the use of sulphur vapour-baths, and the application of Calamine cerate, astringent lotions, water dressing, or cataplasms to sores, according to the circumstances of each case, seem the external measures specially indicated. Reference has been made to the intercurrent attacks of other diseases, such as dysentery, diarrhœa, albuminuria, and pulmonary affections, to which these poor invalids are more or less liable, and which demand other and appropriate treatment; but, looking to the peculiar abnormal condition of these patients, it is scarcely necessary to insist on the cautious and sparing employment of such an atonic and depressing drug as mercury, and one also which operates so powerfully in reducing the proportion of red-corpuscles in the blood.

Although the prognosis of leprosy, so far as recovery is concerned, must be regarded as very unfavorable, yet its duration may be protracted through many years. The anæsthetic form is much more chronic in its progress than the tubercular, but both may last for years. In Surgeon Lawder's experience, leprosy "does not of itself appear to shorten life materially," and he has found "that quite as many live to old age among lepers as among the other classes of their society, whether Indo-Britons or Natives." When death does overtake the leper, it is generally the direct result of one or other of the intercurrent diseases to which allusion has already been made.

Professor Virchow asks in his Appeal if there be any local laws affecting lepers—if they are subjected to solitary confinement,—or prohibited to marry? To this three-fold query a negative reply must be returned. No legislative restrictions have been placed on this class of individuals, who are at perfect liberty to wander whithersoever they please, and to enter into whatever relations in life it may be their power to obtain an admittance.

TABLE I.

Table of admissions, discharges and daily average of sick since 1840.

Years.	Admitted.	Discharged.	Averagedaily No. of sick.
1840	112	25	$55\frac{1}{4}$
1841	110	95	$41\frac{1}{4}$
1842	126	80	$56\frac{3}{4}$
1843	77	40	$54\frac{3}{4}$
1844	81	80	40
1845	82	57	$42\frac{1}{2}$
1846	130	98	$69\frac{1}{3}$
1847	98	74	$61\frac{1}{3}$
1848	92	76	$57\frac{7}{12}$
1849	93	72	$64\frac{3}{4}$
1850	100	82	58
1851	115	92	62
1852	97	72	$53\frac{2}{3}$
1853	88	74	$53\frac{1}{2}$
1854	170	118	64
1855	112	125	45
1856	73	34	$55\frac{1}{2}$
1857	59	47	63
1858	82	62	64
1859	76	57	64
1860	112	58	63

TABLE II.

FORT ST. GEORGE, *26th June*, 1857.

No. 194 of 1857.—The Right Hon'ble the Governor in Council is pleased to publish the following revised Scale of Hospital Diet for European Troops at the three Presidencies, established by the Government of India, which is to have effect from the 1st July next :—

TABLE OF DIETS FOR HOSPITALS OF EUROPEAN TROOPS.

Meal.	Full Diet.	Half Diet.	Low Diet.	Spoon or Fever Diet.	Milk Diet.	
Breakfast.	Tea. . . . . ½ oz. Bread . . . . . 1 lb. Butter. . . . . 1 oz. Sugar . . . . . ¾ „	Tea. . . . . ½ oz. Bread. . . . . 1 lb. Butter. . . . . ½ oz. Sugar. . . . . ¾ „	Tea . . . ½ oz. Bread. . . 8 „ Sugar. . . ¾ „	Tea. . . ½ oz. Sugar. . . ¾ „	Tea. . . ½ oz. Bread . . 1 lb Butter. . . ½ oz. Sugar. . . ¾ „	
Dinner.	A pint of broth with barley, greens and onions, and 1 lb. of meat, either mutton or beef.	A pint of broth, with rice, barley, greens or onions, and 8 oz. of mutton of good and edible quality, or a pint of chicken soup with vegetables as above, a chicken or half a fowl, weighing, when ready for being dressed, not less than 8 oz.	A pint of mutton or chicken broth.	Bread ½ lb., to be made to panado or pudding, or 4 oz. of sago, with ¾ oz. of sugar.	A pint of milk (new) or a pint of rice and milk with ¾ oz. of sugar.	N.B.—In both these cases, the meat from which the broth is prepared is given to the patient.
Supper.	A pint of rice gruel, with ¾ oz. of sugar, seasoned with ginger or nutmeg, & glassful of wine, should any be allowed him.	Ditto. ditto.	Ditto. ditto.	The same as at Breakfast.	The same as at Dinner.	

TABLE II.—*(Continued.)*

In specifying the quantity of each item of meat for the several kinds of diet, it is to be distinctly understood that meat in a raw state is intended and not meat which has already been boiled.

ARTICLES COMPOSING THE DIFFERENT HEADS OF DIET FOR A DAY.—AVOIRDUPOIS WEIGHT.

Full.	Half.	Low.	Spoon.	Milk.	Note.
Meat 1 lb., either beef or mutton. Bread 1 lb. Butter 1 oz. Milk 2 measures. Sugar 1½ oz. Tea ½ an oz. Rice 4 oz., for gruel and conjee water. Salt ½ an oz. Onions 1 oz. Pepper 1 dr. Ginger ½ a dr. Nutmeg ½ a dr. Barley ½ an oz. Flour ½ an oz. Firewood 2 seers. Greens ½ oz. Potatoes ½ lb.	Mutton 8 oz. of good and edible quality, or ½ a fowl or a chicken for broth. Bread 1 lb. Butter ½ an oz. Milk 2 measures. Sugar 1½ oz. Tea ½ an oz. Rice 4 oz., for gruel and conjee water. Salt ½ an oz. Onions 1 oz. Pepper 1 dr. Ginger ½ a dr. Nutmeg ½ a dr. Barley ½ an oz. Flour ½ an oz. Firewood 2 seers. Greens ½ oz. Potatoes ½ lb.	Mutton 8 oz. for preparing broth, or a chicken for broth. Bread 8 oz. Milk 2 measures. Sugar 1½ oz. Tea ½ an oz. Rice 4 oz., for gruel and conjee water. Salt ½ an oz. Onions 1 oz. Pepper 1 dr. Ginger ½ a dr. Nutmeg ½ a dr. Barley ½ an oz. Flour ½ an oz. Firewood 2 seers. Potatoes ½ lb. Greens ½ oz.	Bread 8 oz. or 4 oz. sago. Sugar 2¼ oz. for tea, sago and panado. Tea ½ an oz. Milk 3 measures, for tea and panado. Salt ½ an oz. Nutmeg ½ a dr. Rice 2 oz. for conjee water. Firewood 2 seers.	Bread 1 lb. Milk 2 pints, and 2 measures for tea. Butter ½ an oz. Sugar 2¼ oz. Tea ½ an oz. Rice 6 oz., for rice, milk and conjee water. Salt ½ an oz. Frewood 2 seers.	The half of a fowl or chicken of the "half diet" is to weigh 8 ozs., exclusive of bones.

TABLE III.

DIET TABLE FOR NATIVE SICK.

	Full Diet.	Reduced Diet.	Spoon Diet.
Breakfast at 7 o'clock A. M.	Adults.—1 pint of thick conjee, and 1 oz. of atchar. Youths.—12 oz. of thick conjee, and 6 drs. of atchar. Children.—8 oz. of thick conjee, and 4 drs. of atchar.	Adults.—1 pint of thick conjee, and ½ an oz. of atchar. Youths.—12 oz. of thick conjee, and ½ an oz. of atchar. Children.—6 oz. of thick conjee, and no atchar.	The same as in reduced Diet.
Dinner at 1 o'clock P. M.	Adults.—Boiled rice 2½ pints, curry ½ a pint. Youths.—Boiled rice 1¾ pints, curry 6 oz. Children.—Boiled rice 1¼ pints, curry 4 oz.	Adults.—Boiled rice 1¾ pints, curry 6 oz. Youths.—Boiled rice 1¼ pints, curry 4 oz. Children.—Boiled rice ¾ pint, curry 2 oz.	Arrowroot, sago, mutton broth, or fowl soup at the discretion of the Surgeon. These articles to be the same as in European Hospitals. Adults.—1 pint, Youths 12 oz., and Children ½ a pint.
Supper at 6 o'clock P. M.	Adults.—Boiled rice 1¾ pints, pepper water 1 pint. Youths.—Boiled rice 1¼ pints, pepper water 12 oz. Children.—Boiled rice ¾ pint, pepper water 6 oz.	Adults.—Boiled rice 1¼ pints, pepper water 12 oz. Youths.—Boiled rice ¾ pint, pepper water 8 oz. Children.—Boiled rice ½ pint, pepper water 4 oz.	The same as in reduced Diet.

EXPLANATIONS.

Adults.—15 years and upwards.
Youths.—From 8 to 15 years.
Children.—Under 8 years.

Computation.
16 oz. to the pint.
16 oz. to the pound.
8 drs. to the ounce.
Avoirdupois.

Rotation of Diet.

Sunday, Tuesday, Friday	Meat curry.
Monday, Wednesday, Thursday, Saturday	Vegetable curry.

The description of rice to be used is that called,
8 raw oz. by weight computed to boil into 20 oz. dry by weight, and 28 oz. by measure.
Mutton for curries to be inclusive of bones.

No. 1.—*Thick Conjee.*

Bruised rice	2 pounds.
Water	12 pints.
Salt	1 ounce.

Boil to 8 pints.

No. 2.—*Atchar.*

Green Gram	1 pound.
Chillies	1½ ounce.
Salt	1 "
Garlic	1 "
Water	12 ounces.

No. 3.—*Curry Powder.*

	oz.	drs.
Chillies	3	6
Black pepper	1	4
Coriander seeds	0	6
Turmeric	1	1
Cummin seeds.	0	6
Mustard seeds.	0	6
Vendium.	0	6

No. 4.—*Mulloogataney Powder.*

	oz.	drs.
Chillies	6	0
Black pepper	3	0
Mustard seeds	0	6
Vendium.	0	3
Cummin seeds.	0	3
Turmeric.	1	4

No. 5.—*Meat Curry.*

	lbs.	oz.	drs.
Mutton with bones	2	0	0
Curry power.	0	4	2
Tamarind	0	3	0
Salt	0	3	4
Onions	0	3	4
Ghee	0	3	0
Garlic	0	0	4
Carrapillay	0	0	2

Water sufficient to make 4 pints of curry.

No. 6.—*Vegetable Curry.*

Vegetables	1½ pounds.
Dholl	½ pound.

Other articles as in No. 5, excepting meat.

No. 7.—*Pepper Water.*

	oz.	drs.
Mulloogataney powder	2	0
Garlic	0	3
Tamarind	4	2
Salt	2	4
Onions	0	4
Ghee	2	0

Water sufficient quantity to make 8 pints of pepper water.

No. 8.—*Calculation of a full Mess for one day, raw materials without fraction.*

	lbs.	oz.	drs.
Rice	1	8	0
Mutton	0	4	0
Vegetable	0	3	0
Dholl	0	1	0
Green Gram	0	0	6½
Tamarind	0	0	7¼
Garlic	0	0	1½
Salt	0	0	6½
Onions	0	0	4
Ghee	0	0	5
Carrapillay	0	0	¼
Chillies	0	0	2¾
Black pepper	0	0	1
Vendium	0	0	⅓
Cummin seeds	0	0	⅓
Mustard seeds	0	0	⅓
Turmeric	0	0	⅔
Coriander	0	0	½

TABLE IV.

Number.	Patients' Names.	Age.	Married or Single.	Offspring.		Offspring Affected.		Parent's Affected.		Parent's Offspring.		Parent's Offspring Affected.	
				Boys.	Girls.	Boys.	Girls.	Father.	Mother.	Boys.	Girls.	Boys.	Girls.
1	Mr. Johnson	40	Married.	2	1	0	0	0	0	0	2	0	2
	Joseph Collins	19	Single.	0	0	0	0	0	0	9	7	1	0
	N. Hamilton	33	do.	0	0	0	0	0	0	3	3	1	0
	J. Trueberry	32	Married.	0	0	0	0	0	0	2	2	1	0
5	James Yates	32	Single.	0	0	0	0	0	1	1	1	1	0
	John Pye	41	do.	0	0	0	0	0	0	3	6	1	0
	Lazar	35	Married.	2	2	0	0	0	0	4	6	1	0
	John Conner	34	do.	1	0	0	0	0	0	5	4	1	0
	J. Duckworth	22	Single.	0	0	0	0	0	0	2	2	1	0
10	John Vermoss	35	do.	0	0	0	0	0	0	1	3	1	0
	Joseph Gomiss	50	do.	0	0	0	0	0	0	4	0	1	0
	Rungasawmy	30	do.	0	0	0	0	0	0	3	1	1	0
	Mooneesawmy	22	do.	0	0	0	0	0	1	2	1	1	0
	Veerasawmy	29	do.	0	0	0	0	0	0	3	0	1	0
15	Juggernauth	32	Married.	0	1	0	0	0	0	3	1	1	0
	Gousee	55	Single.	0	0	0	0	0	0	2	1	1	0
	Venketsawmy	35	Married.	0	0	0	0	0	0	1	0	1	0
	Ramasawmy	40	do.	3	4	0	0	0	0	1	1	1	0
	Narrinen	35	do.	1	0	0	0	0	0	2	1	1	0
20	Venketsawmy	34	do.	0	0	0	0	0	0	1	0	1	0
	Narrinee	35	Single.	0	0	0	0	0	0	6	1	0	1
	Gungamah	45	Married.	0	0	0	0	0	0	3	2	0	1
	Poonee	45	do.	1	1	0	0	0	0	3	2	0	1
	Samoovaloo	50	do.	1	1	0	0	0	0	1	0	1	0
25	Manwel	55	do.	6	1	0	0	0	0	5	1	1	0
	Veerappen	55	do.	3	2	0	0	0	0	4	3	1	0
	Ramasawmy	50	do.	0	0	0	0	0	0	3	0	1	0
	Veerasawmy	21	Single.	0	0	0	0	0	0	4	0	1	0
	Royappen	50	Married.	5	5	0	0	0	0	4	2	2	0
30	Mootoosawmy	45	do.	1	2	0	0	0	0	3	2	2	0
31	Shumsha Deen	28	Single.	0	0	0	0	0	0	1	1	1	0

Art. XII.—*Remarks on the administration of Cinchoniæ Disulphas.* By H. R. Oswald, Esq., M.D., Assistant Surgeon.

In the last Number of the "Madras Medical Journal" Dr. Kirkpatrick very justly brings to notice the virtues of Cinchoniæ Disulphas, as a remedy in the treatment of agues.

I have been prescribing it in the Shemooga Hospital since 1857, up to the present date; during this period 4,985 cases of fever, of all types, have been treated, so that I have had numerous opportunities for testing its virtues, and my experience has led me to form a high opinion of its powers as an antiperiodic. Intermittent fever, as seen here, though not often fatal, is in many cases very severe; the ague especially is prolonged, and enlargement of the spleen frequently met with, even in children of the tenderest years; showing the truly malarious origin of the disease. With this field for observation I may state that I am inclined to place cinchonine almost on a par with quinine; in some cases it fails, but not often. Doctor Kirkpatrick observes, the dose required to check an attack of ague is about the same as that of quinine, but I do not quite coincide with this, as I have generally found a rather larger quantity necessary.

I have not tried the combination of quinine and cinchoniæ disulphas, as in cases where the latter has failed I have at once had recourse to the former.

Royle states that "Dr. Pereira and others consider it equal in medicinal activity to the quinæ disulphas." Dr. Waring says, "its action is similar to that of quinine, but it is less energetic, and consequently requires to be given in larger doses." Many cases in which it has been given might be adduced, but, as they would occupy valuable space, it may be sufficient perhaps to mention, that since its first employment by me, no less than 4 lbs., 10 oz., have been expended in addition to quinine and bark, showing the estimation in which it is held. In fact it is now in daily and constant use, and is as regularly indented for as any other drug.

For some time past, however, I have observed that the administration of the cinchoniæ disulphas is attended with certain physiological effects, which will probably prevent it from ever being substituted for quinine under all circumstances. Dr. Kirkpatrick has mentioned that nausea and vomiting attend the use of large doses, such as 15, 20, and

30 grains. I have, however, found that nausea sometimes attends even 5 grain doses, and this is frequently accompanied by giddiness, dryness, and constriction of the fauces, and sometimes purging with pain in the abdomen. I observed some of these symptoms in my own person after a 10 grain dose taken to check an attack of fever, and the same remark has been volunteered to me by natives who have taken it: they pass off in a few hours, as long as they last, however they are very disagreeable, as I can testify from personal experience.

After a time there is apparently a "tolerance" of the remedy, and these unpleasant symptoms are not perceived; in long continued doses the effect is similar to that produced by quinine.

I think then with these disadvantages the remedy is never likely to supersede quinine, except where economy is a consideration. When this is the case, I have no doubt that the cinchoniæ disulphas may be substituted for quinine in the treatment of simple uncomplicated intermittents with equal safety and benefit.

Appended is a table of cases in which it was given with a view of ascertaining the physiological effects I have alluded to, and it will be seen they were observed more or less in every instance.

No.	Age.	Dose.	Type.	Effects.
	Yrs.			
1	33	grs. 5	.....	Dryness of the throat and fauces, nausea, giddiness, and once copiously purged about three hours after taking the dose.
2	30	„ 5	.....	The same symptoms as above.
3	28	„ 5	.....	Do. do. purged twice.
4	...	„ 10	Quotidian.	Dryness of the throat and fauces, no giddiness, or nausea or purging.
5	...	„ 10	Tertian.	Do. do.
6	...	„ 10	.....	Do. do.
7	...	„ 15	.....	Do. and nausea, vomiting, giddiness, and purging.
8	21	„ 5	.....	Dryness of the throat and fauces, and giddiness, no purging or vomiting.
9	30	„ 5	.....	Giddiness and dulness, no dryness or constriction of throat, or purging.
10	35	„ 5	.....	Giddiness, nausea, dryness of throat, no purging.
11	35	„ 15	Tertian.	Giddiness, nausea, and purging, no dryness of fauces.
12	50	„ 5	Quartan.	Dryness of tongue and mouth, giddiness, purged twice.

No.	Age.	Dose.	Type.	Effects.
	Yrs.			
12	50	grs. 5	Quartan.	No fever, but tongue very dry.
13	35	grs. 20 in 2 doses.	Do.	Dryness of fauces, pain in stomach.
„	„	Do.	Do.	Slight dryness of fauces, giddiness severe, prevented his rising up from recumbent posture.
„	„	grs. 10 in 2 doses.	Do.	Pains in abdomen, nothing else, no fever.
14	26	grs. 5	.....	Dryness and constriction of the mouth and fauces, slight giddiness, and pain in stomach.
15	35	„ 20 in 1 dose.	Tertian.	Dryness of mouth and fauces, giddiness and pain in stomach with nausea, no vomiting, no fever.
16	25	grs. 20	Quotidian.	Nausea, vomiting, giddiness. Fever.
„	„	„ 15	Do.	Fever.
„	„	„ 10	Do.	No fever.
„	„	„ 10	Do.	No fever.
17	40	„ 20	Quartan.	Dryness of throat, giddiness, nausea. Fever.
„	„	Do.	Do.	Slight fever in the evening.
„	„	„ 20 in 2 doses.	Do.	No fever, quite well.
18	20	grs. 15	Quotidian.	No particular symptoms complained of, slight fever.
„	„	„ 10	Do.	Had fever again. This proved to be a most severe case of fever, resisting for some time quinine, and eventually requiring a change of residence.

Cases No. 1, 2, 3, 6, 7, 8, 9 and 14 were not fever cases, but healthy individuals to whom the medicine was given experimentally.

SHEMOOGAH, *August* 1861.

ART. XIII.—*On the Treatment of Simple Sympathetic Bubo.* By M. C. FURNELL, Esq., Acting Surgeon, Sappers and Miners, Dowlaishwarum.

IN the January Number (No. III.) of the "Madras Quarterly Journal of Medical Science," will be found at page 173 a small memo. by the Inspector General of Hospitals, "On the employment of Pressure in the treatment of Buboes or Enlarged Glands."

A plan which seemed to promise so ready and facile a mode of conquering one of the most intractable local maladies which afflicts dwellers in the East, must have been hailed by every practical man with pleasure.

Not that the adoption of pressure, for the dispersion of glandular chronic swellings was a new idea; but its control and adaptation by means of a truss was novel and seemed to promise—backed as it was by the authority of 16 successful cases—an immunity from failure common enough when pressure is ordinarily applied.

I regret, however, that I have not found the promise thus held out realised.

In the first case that a truss was tried its effect seemed magical.

Appoosawmy, a lascar, was admitted into the Dowlaishwarum Civil Hospital on May 10th. The truss was ordered to be applied for two hours every day; in four days from the time of admission, he was discharged, cured. But in three consecutive cases in which the truss was tried in the same hospital, the pain became intolerable; the truss had to be discontinued; suppuration supervened; the buboes were opened, and the cases proceeded, as usual after suppuration, slowly and tediously to a cure.

At the same time the truss was being tried in the Civil Hospital, a sepoy presented himself at the Regimental Hospital with two buboes, one in each groin. Simple sympathetic buboes, brought on from over exertion in digging in the trenches. In this case a double truss was put on; one bubo disappeared, but the other went on to suppuration, and the man was sometime in hospital.

Mooneesawmy, another private, was admitted into hospital May 14th, with a simple sympathetic bubo in the right groin; a truss was applied; suppuration ensued, and the abscess was opened; sinuses formed and burrowed, and he was under treatment until the end of June.

Now I have often noticed natives do extremely well with simple buboes, if you let them entirely alone. These swellings with them seem scarcely to partake of an inflammatory character. There is little or no increase of heat, not much pain; the general health not at all disturbed; in fact the malady presents only just sufficient claims for a man's admission into hospital.

Out of twenty cases of this description, treated by being left alone in the Civil Hospital (and these cases are tolerably frequent among the men employed in the quarry and steam-boat of the Godaveri), only two went on to suppuration, and the average time of the patient remaining under treatment was fifteen days. A result certainly as satisfac-

tory as would be produced by any more heroic treatment, and considerably less painful to the patient.

But such an affection with a European is often a very different thing, presenting many symptoms of energetic action ; heat, pain, swelling, &c., and consequently ought not the treatment to be proportionately more active ?

I am not sure of this.

On the contrary, I have long had my doubts about it. I have seen Europeans under the charge of myself and others too, treated for this complaint in the "active" style—leeched, iodinised, blistered, mercurialised, &c., and I have seen many sick for months, their groins suppurating, sinuses forming requiring the knife over and over again, the health broken down, cachexia established, and an ultimate recourse to England rendered absolutely necessary.

I think Surgery, meddlesome Surgery, often to blame for this.

The glands of the groin swell, we are led to believe, from some irritation, say from a strain in walking ; a jolt whilst riding ; a sore foot, or a sore on the penis ; a medical man is called on to treat this swelling, what is he to do ?

I would say, above all things, to avoid being the cause of additional irritation, whether by leeching, mercurial ointment, Iodine paint, blister or trusses.

What then is to be the treatment ? "*Perfect rest,*" having in mind that the great thing to be avoided in this country is suppuration.

To this perfect rest I confess I should feel inclined to add, when obtainable, ice to the swelling ; but in this I have no experience, never having treated buboes in this country where ice was procurable, but I see Ricord who, no doubt, has given this antiphlogistic remedy a fair trial, is not very enthusiastic about it, for he says :—

"With regard to the application of ice I may remark "that if the bubo diminishes within the 48 hours of appli- "cation of cold, it *may be* persevered in ; but if the tumor "should not decrease, the ice cannot be continued with "safety or utility ;" it will most probably act as an irritant.

I should, and do, lay my trust in perfect rest, for the speediest and safest cure of an enlarged gland in the groin, and I think the following cases may go to prove the position.

Mr. M—— came under my charge in May 1860, with a swelling in his left groin. He attributed this to an attempt

to recover his seat when being thrown from his horse. Whilst mounting, the left foot being in the stirrup, the animal suddenly swerved and he fell, the left groin thus experiencing a wrench. He was recommended "perfect rest," to lie on a couch or have that leg always supported, and as a placebo, a pocket handkerchief, damped and folded, to be kept on the groin. He was seen each day for the next three or four days, and the swelling was found gradually to subside and all pain had departed.

On the 5th or 6th day at the usual visit the patient was out, he had gone to Cocanada, a distance of some thirty miles, on business connected with his department.

He returned a week afterwards, groin much enlarged, he had taken exercise, and had had the place painted with Tinct. of Iodine.

Pressure, by means of a truss, was applied twice during the day, two hours each time. Next day the swelling was larger and very painful, and he strongly objected to the re-application of the truss.

He asked very urgently for some leeches, and a dozen were applied round about the swelling, which drew blood freely. He expressed himself much relieved, and considered himself better, an opinion in which I did not coincide, for the next day the bubo was hotter, softer, larger, and looked very much as if suppuration were about to commence.

Rest and no more applications were now insisted upon, he very rapidly mended, and in ten days was about his occupation, which is an active one.

The part had quite recovered, save one small gland about the size of a filbert, which remained hardened, but has since disappeared.

My patient of course swore by the leeches. I think another half dozen would have caused suppuration, and he would have been on his back for weeks, perhaps months, with sinuses, &c.

The two following cases occurred simultaneously and were subsequent to the above.

June 8th.—Corporal C——, a fair haired, stout young man of sanguine temperament, presents himself at hospital with a swelling in his left groin, which he attributes to a strain whilst jumping: his general health is good, has never been the subject of syphilis. Ordered rest; confined to bed; no local treatment; half diet.

June 10th.—Improving steadily, the swelling is less.

June 20th.—The part presents now but a very small swelling about the size of a small nut; he is discharged to his duty which is office work. Dismissed 12 days from his admission. He was seen subsequently several times, until all trace of enlargement had disappeared.

June 8th.—Lieut. F——, who had been previously some little time sick with sciatica and on the sick report, went out, the day after his name was returned for duty, shooting, and walked a good deal. In the evening he complained of stiffness about the groin of his left side; he was seen the following morning, glands of left groin swollen, hot and painful on pressure; he was very anxious to have some leeches on, and six were applied round about the swelling. They drew freely, and a good deal of blood came away after their removal.

The next day the part was considerably larger, and the leech bites looking irritable and inflamed.

It was determined now to try rest and that only. For several days the enlarged glands had all the appearance of inflammation proceeding to suppuration; the leech bites became especial centres of irritation, ulcerating and healing unkindly; as soon, however, as they did heal, the swelling began to subside, and although while writing (20 days from his first coming under charge), he is still confined to his quarters, the part is much smaller and rapidly mending, no application since the leeches having been allowed. (He has since quite recovered.)

The following case is of mixed character, but is cited to shew how Iodine, apparently favorable at first, was, on its re-application, attended with the result—suppuration—which, in my humble opinion, is the one of all others if possible to be avoided in this country.

Corporal B—— was admitted into Hospital April 22nd, with hard enlarged gland in the left groin; no syphilis; can give no satisfactory reason for its appearance; no sore on penis or lower extremity; no syphilitic history; he was ordered to have a truss applied for two hours every day. This was carried on for about 10 days without any apparent benefit. The truss therefore was discontinued and the part was painted with Tinct. of Iodine (or Iodine paint), the first application being made May 2. He progressed well, and on the 13th he was discharged to duty. One week afterwards he came again to hospital. The swelling had returned, and it was again painted with Iodine, suppuration

rapidly supervened, and the part had to be opened. The case then became a tedious one; numerous sinuses formed and required laying open, and the man is still (July) under treatment.

What is the opinion of Ricord and others about the treatment of Buboes?

Says Ricord—"Absolute repose, ice, leeches applied around "the bubo, are the most advantageous modes of treatment "and may limit if not dispel the suppuration. With regard "to the application of ice, I may remark if the bubo dimi- "nishes during the first 48 hours of cold, it *may be* persever- "ed in, but if the tumour should not decrease, the ice cannot "be continued with safety or utility.

"On the first appearance of the swelling compression is "decidedly useful, hence the rare occurrence of bubo on the "side on which the patient wears a well-made herniary truss."

Though he notices this he does not seem to have actually used the truss on a bubo, for he says,

"I use for the purpose of compression, a wooden disc cover- "ed with leather and fixed around the abdomen and thigh "by means of a long strap and two buckles."

Such a pad may be seen delineated, as applied, in Acton's work, p. 464. I have applied it and seen it used in London, but, as far as my memory serves me, with no very great advantage.

Ricord goes on to say—"Some people recommend blisters "to be raised and then dressed with Hydrarg. Subchlorid. "When this plan was first spoken of I applied it according "to the direction of the inventors to "all buboes," and found "that the average of the suppuration was *one half*. Subse- "quent observation again showed that, when this plan is "not followed, all buboes being taken into account, one half "certainly escape without suppuration."

"*One half certainly escape without suppuration.*" He speaks of course of the syphilitic bubo, and as the remarks here are meant for the simple sympathetic bubo, his observations are scarcely german to the point.

But the maladies are much the same. The causes are different, the effects are identical.

What would have been the effect in Ricord's practice if he had tried the first only on his list of remedies, "absolute repose," and left all local application alone?

With many it is a received opinion that a simple sympathetic bubo is more apt to suppurate than a purely syphili-

tic one. I am not of that opinion, but that neither have any inclination to do so, if left entirely alone, is I think the nearer approach to fact.

A very able Surgeon in this Presidency is I believe in the habit of blistering buboes, merely to cause them to suppurate, this being in his opinion the speediest solution of the malady.

Being, as I know the gentleman in question to be, a very able Surgeon, and one having had great experience in the treatment of Europeans in this country, his opinion is entitled to great weight. But granting (and only for the sake of argument; I do not admit it), that you gain a few days or even a month by producing rapid suppuration, has a Surgeon any right to put his patient to the pain of that process, the subsequent pain of the operation, and to disfigure his groin for life, to gain a few days? Are there no relations in life which would render a scarred and disfigured groin awkward to a young man? And is not the recourse to the knife, if it can be avoided, the last alternative of a good Surgeon?

These opinions are started with the utmost diffidence on the part of the writer; but little, almost nothing, seems to have been written about this, in this country, very common malady; and certainly the routine remedies of tradition claim no very great amount of our confidence.

If blistering, or pressure, or Iodine, or ice, have any value, they would to me be adjuvants only when I found a bubo was obstinately quiescent. As long as the enlargement diminished, even ever so slowly, I would allow nature, assisted by "*absolute repose*" and, if necessary, tonics and generous diet, to effect her own cure.

It might be objected that such repose would act injuriously on our patients health, that confinement to quarters would be objectionable; but as in all other plans of treatment the same confinement must ensue, such an objection falls to the ground. But I claim for this plan, amongst its other benefits or rather avoidance of other evils, a speedier cure. Your patient is restored to health "Cito," as well as "Tute et Jucunde." I am confident it will be found the speedier plan, but even if not speedier its immunity from other evils entitle it to trial.

It will be seen from the above remarks it is claimed on the part of "perfect rest and no local interference," a speedier cure, an easier and less painful one. The Medical offi-

cer is saved the disappointment of using inefficacious remedies, the patient the trouble of undergoing them, and suffering from their effects. He is saved also the subsequent incision by a knife, to be repeated perchance on sinuses a dozen times, and the disfigurement caused by a scarred and puckered groin; these recommendations also entitle the plan to careful consideration.

Once the bubo has arrived at suppuration, once pus has formed, seldom a doubtful thing in a European—often so in the case of a native—I confess I do not hesitate to interfere.

But here again it must be remarked there seems no hurry; the longer, up to a certain point, the formation of pus is allowed to go on, or is even favoured, the less painful is the subsequent contact of the knife when used, and the more completely melted, if I may use the term, are the offending glands, more complete and speedy their evacuation, the subsequent reparation more easily effected and sinuses less likely to form.

In suggesting rest, and rest only, as the most rational means of treating enlarged or inflamed glands in the groin, it was not the intention of the writer to enter into any remarks concerning the treatment of the suppurative stage.

But could any means be suggested to avoid recurrence to the knife—especially in the stage of burrowing sinuses, it would, I think, be hailed by the Surgeon with little less pleasure than the patient. The heated platinum wire application introduced by Mr. Marshall and published in the "Medico-Chirurgical Transactions" for 1851, I have never seen tried, but the following plan given by Mr. Jessop of Cheltenham, recommends itself from its simplicity.

He gives two cases (*Lancet*, March 9th 1861) in which old standing and obstinate sinuses were cured, thus:—

"Passing a probe into each sinus a distance of an inch "or an inch and a half, I cut or nicked down on its point "with a small lancet-shaped scalpel, so destroying the con- "tinuity of the canal at that spot. Withdrawing the "probe I passed it from the point of incision for another "inch, repeating the proceeding, and so along the track of "each sinus. In this way numerous small incisions were "made. Pressure was carefully re-applied over the affected "parts, very little disturbance ensued, but the patient com- "plained of more life and soreness in the groin than he had "done at any other period of his case." Both cases recover-

ed perfectly, though I confess myself unable to see the rationale of the treatment pursued.

I have found in cases of slow, unhealthy, open suppuration, a poultice made of the leaves of the Neem tree (Melia azadirachta. Linn.) act as a capital stimulating and cleansing application ; it is a highly prized remedy amongst natives.

Let me conclude my remarks with a case, which, if not instructive, may be found amusing.

An intimate friend of mine had a very bad case of bubo to treat ; it presented a foul, unhealthy looking surface, very tender, and several deep sinuses. The subject of it was an officer, a young, strong, athletic, and otherwise healthy man, much given to field sports, of unquestioned pluck across country, and good nerve.

But this bubo which had now lasted some time, had completely cowed him. To my friend's suggestion that he should allow the sinuses to be laid open, he replied to the effect that he had been cut once and would take good care no "docther" ever touched him again with a knife.

Over and over again he was brought by argument and persuasion to consent, but directly he caught sight of the dreaded director and bistourie, his courage failed him, and despite his previous promises he would retract. He positively refused for some reason also to take chloroform.

My friend was in despair ; the part was certainly not improving ; the general health was deteriorating daily, when the following strange occurrence solved the difficulty.

Dining at this officer's house one night with some other friends, the conversation turned upon duelling, which our patient, true to the instincts of his country, rather approved of, affirming that in some instances he considered an ultimate appeal to arms defensible.

To this Chirurgicus demurred and taking the opposite side of the question, the argument was carried on, and at last became somewhat warm.

"You talk of duelling" quoth C., "a man who has not "courage enough to undergo a trifling surgical operation, "why Sir, you would run away from a pistol loaded and "within twelve paces of you."

Pat was furious, and the rest of the company, some three or four brother officers, were equally pained and astonished at the Doctor's style. He must apologise and retract. Nay he would do neither one or the other. "Then he must fight

me," quoth the offended. "With all my heart," said the Doctor.

"But," said he after a moment's pause, as if a sudden idea had just occurred to him, "I am not going to fight you unless you let me open those sinuses. If I were killed it might be said I had not treated you properly, and for my part I should be ashamed to send you out of the world in such a disgracefully unsurgical state."

Open them! he should open them directly, and as it was a beautiful moonlight night, they could proceed to the other work immediately afterwards. Such was the cheerful assent of the fire eating Milesian.

One or two of the company, who knew the doctor well, began to have a faint idea he was up to something, and forthwith two revolvers and a pocket case were sent for.

I must premise that the party were at their after dinner cheroots, when the argument took place. Presently arrived the pocket case and pistols, and our patient, still in a rage so great that he had not the faintest idea of the ruse, which was becoming pretty evident to the rest, retired to the bedroom, and there, without a single groan or expression of pain, allowed three or four deep sinuses to be fairly laid open and dressed.

"Have you done Doctor?"

"I have."

"Now then we'll proceed to our other little affair."

"Nay," said the Doctor changing his tone and manner, "you dont suppose my good fellow I am going to fight "every man I operate upon, do you? Surgery *would* be "an exciting profession. No! you know Pat, old fellow, "I have been wanting to do this for you for the last two "months, and you would not let me; now I have done it, "you must forgive me the means, for the object I had in "view."

This and the laugh of the other officers, who had "assisted" as the French say at this little "seance," completely opened Pat's eyes to the whole affair, and he laughed too. Shaking hands with the Doctor, he thanked him cordially, and the revolvers were dismissed with ignominy.

Art. XIV.—*A Notice of the Shervaroy Hills, including their Medical History and Topography.* By Assistant Surgeon William Robert Cornish, *Secretary to the Principal Inspector General of the Madras Medical Department.*

Topography.—The Salem Collectorate of the Madras Presidency lies between 11° and 13° North latitude, and 78° 20″ and 74° East longitude. In this district are numerous detached hills, and some mountainous ranges, the latter of which rise from 4,000 to 6,000 feet above the sea level. The Juvenady and Yellaghiri mountains are situated on the eastern side of the Baramahl; the Shervaroys, a few miles north of the town of Salem, and the Collemally, Shendamungalum (or as it is sometimes spelt Chendanungalum) ranges in the south-east corner of the district. The Salem district is bounded on the east by the Arcot Collectorate, on the west by Coimbatore, on the south by Trichinopoly, and on the north by the Province of Mysore. In length from north to south it is about 120 miles, and in breadth it averages 60 miles.

All the mountain tracts in the Salem district are more or less inhabited, and in favorable spots, the land is cultivated. A considerable quantity of timber, including teak, sandalwood and blackwood, is obtained from the hilly regions. They are characterized by possessing a cool and invigorating climate, which, with some few exceptions as to season and elevation, may be considered salubrious and well suited to the European constitution.

The Shervaroy Hills, which form the proper subject of this article, are situated in 78° 20″ East longitude, and 11° 50″ North latitude. They form the northern boundary of the valley in which the town of Salem lies. The southern base of the mountains is about 6 miles distant from the town of Salem, and the plateau extends about 10 miles north and south, and the same distance east and west, and has been calculated to contain about 100 square miles. As seen from the town of Salem it appears as a huge pile of irregular mountain, broad at the base and narrowing towards the top, one point rising above another. The surrounding land is cultivated to the very foot of the Hills, and the steep slopes are covered from the base to the top with jungle.

Elevation.—The elevation ranges from 2,500 feet on the eastern, to about 5,300 feet on the western side, above the

level of the sea. The greater portion of the plateau, however, may be said to be from 4,000 to 5,000 feet above the sea, and from 3,000 to 4,000 feet above the level of the town of Salem.

Ghauts.—Two passes or ghauts lead to the table-land. One on the southern or Salem, and the other on the northern or Baramahl side. The former is about 6 miles in length, and is a Government road. It is in some parts very steep and impassable for wheeled conveyances. It is capable of some improvement, but it is doubtful if an easy road could ever be made of it. This is at present the only practicable approach to the Hills, and the daily supplies of the inhabitants are brought up from Salem on this road by coolies or on the backs of bullocks.

The northern ghaut is reached from the Mulliaporam Railway station, and although no road has as yet been constructed, the gradients are said to be easy, and a carriage way practicable. Mulliaporam is distant 180 miles from Madras, and 8 from the foot of the Hills. A road has already been sanctioned by Government.

The easiest ascent of all will probably be found, via the Ahtoor ghaut a few miles west of Mulliaporam. The Railway approaches at this point quite close to the foot of the Hills, and there is already a watering station constructed in the jungle, opposite the ghaut, which, at a slight expense, might be converted into a passenger station. This ghaut in the greater part of its length is very easy. A good bridle road will shortly be constructed to the Railway station, and when the trains stop there, it will be practicable to reach the Hill plateau in twelve hours from Madras, supposing the trains to travel at present rates.

Ahtoor is in the midst of an unhealthy jungle. There is no village near the Railway, and some difficulty will be felt at first, in getting coolies and bearers posted there to meet the convenience of visitors.

The principal localities on the Shervaroy Mountain requiring a brief notice are—*Yercaud, The Green Hills, Nagalore, Mungalum*, and the *Tala Sholay Spur.*

Yercaud is the oldest and largest European settlement. It is situated on that portion of the plateau nearest to the town of Salem. The land in the valleys is undulating, and the greater portion of it is under coffee cultivation. The Hill peaks are, for the most part, bare of soil, and the steep slopes covered with low jungle. There are about 20 houses here, and

several of them are available for visitors, at rentals varying from 40 to 120 Rupees a month. There is a Protestant Church capable of holding 60 persons, and a Resident Clergyman, belonging to the Additional Clergy Society, who is partly supported by the voluntary contributions of the residents. There is also a small Roman Catholic Church for a native congregation. In connection with the Protestant Church are native boys' and girls' schools supported by the residents. An hotel, capable of accommodating two or three families, has lately been opened, and the proprietor is deserving of every encouragement from his willingness to make his visitors comfortable.

Most of the houses in Yercaud are very well situated, but, as a rule, they are not raised sufficiently above the level of the ground. Some are built on the sloping ground of hill sides, as on the Neilgherries, and the houses so built generally enjoy a bad reputation for salubrity. Now that the Railway has facilitated access to these hills, visitors are beginning to pour in faster than they can be accommodated. More houses are urgently required.

Many of the houses at Yercaud are built in situations from which extensive and beautiful views of the low country and distant hill ranges may be had. In regard to beauty and variety of scenery the Shervaroy Hills may well compare with the more elevated, and better known Neilgherry range.

As before observed the principal portion of the best land at Yercaud is planted with coffee. The coffee tree is everywhere visible, and interferes somewhat with the natural beauty of the station itself.

Many of the coffee estates are neglected, and full of rank and unwholesome undergrowth of vegetation. Cooly labour is scarce and dear, and the smaller proprietors appear to have undertaken a larger amount of cultivation than they can afford to keep in order. The neglected condition of the coffee land makes itself felt occasionally, during the drying up of the mass of undergrowth in the shape of malaria, and no doubt tends much to keep up the bad reputation which these Hills have obtained for "fever."

The Green Hills are higher than any other portion of the range, and vary from 4,500 to 5,300 feet above the sea level. They differ much in appearance from any other portion of the Shervaroys. The Hills are rounded, and covered only with grass and low stunted shrubs, and the ravines are wooded, as on the Neilgherries. The rounded and undulat-

ing appearance of this portion of the Shervaroys contrasts markedly with the rugged peaks and wooded slopes about Yercaud. The difference is due chiefly to the Green Hills being capped with laterite, in some places of considerable thickness, whereas the bare gneiss of which the Hills are mainly composed, forms the peaks elsewhere.

There are several coffee plantations belonging to Europeans and East Indians about the Green Hills, and there is a fine expanse of table-land, partly under cultivation by the Hill natives, which has been pointed out by Dr. Macpherson, Inspector General of Hospitals, as a site well adapted for a sanitarium for European troops. The site contains about 250 acres of land, and appears to be eminently suited for building barracks or houses upon.

The water supply of the Green Hills is more plentiful than elsewhere. In the dryest season there are three or four streams which always yield a good supply.

There is some swampy land and a native village in the neighbourhood of the proposed sanitarium. The former might easily be converted into a lake by throwing a bund 150 yards long, and 30 feet in (extreme) depth, across the gorge at the lower part of the swamp. Capt. Gahagan, the District Engineer of Salem, calculated, that in the dry season the discharge of water from this swamp would be 30,000 gallons in the twenty-four hours, and four times that amount during the monsoon months. The water has been chemically examined and found to be of unexceptionable quality. The highest of the Green Hills terminates in a plateau of table-land, flat and level as a race course, and about 600 yards in diameter. The vegetation on it is of a stunted character, from poverty of soil; and loose blocks of laterite, of which the plateau is mainly composed, lie about on the surface. On the south-east slope of this elevated land, are two small "Sholas," and the place appears to be held in much veneration by the native inhabitants of the hills, who make periodical visits to a rude pagoda in this spot. There are a few fine trees in these Sholas, and a great variety of ferns abound in the undergrowth. The moisture of the soil in this situation it is evident must be constant and abundant. It is no uncommon thing to see huge forest trees covered even to the topmost branches with mosses, ferns, lichens and orchidaceous plants.

The Green Hills have at present very few houses upon them, and these chiefly belong to resident planters. The situation is undoubtedly the best upon the Shervaroys for

European residents, and from the proximity of the new road to Ahtoor, it would be most convenient to visitors from the Presidency. The chief disadvantage of the locality, is the distance from Salem, from whence all supplies are daily procured, there being no bazaar or market on the hills as yet. The air is much fresher, and feels more like mountain breeze than it does at Yercaud. The views of the low country are grander, and the one from the high plateau previously alluded to, it would be almost impossible to surpass in beauty and variety.

Nagalore is from two to four miles west of the Green Hills, and the land is of lower elevation—probably not more than 4,300 or 4,500 feet above the sea level. There are a few coffee estates here, and the proprietor of one of them is building a substantial residence. There is a good deal of arable land in this direction under native cultivation. The Ahtoor ghaut will bring this portion of the Hills within easy reach of the Railway.

Nagalore is said to be feverish, but from its position and elevation, there is no reason apparent why it should be insalubrious, particularly if due care be taken in the choice of building sites.

Mungalum is two or three miles N. W. of the Green Hills, and as regard elevation and general characteristics, is very similar to Nagalore. There are two or three coffee estates here, and some land under native cultivation.

Talasholay Spur runs from Yercaud station N. E., a distance of 7 or 8 miles, and slopes down to the high table land of Baramahl, which in this direction is about 1,500 feet above the sea.

There are no coffee estates, nor European residents, and the Hills are more rugged and precipitous here than elsewhere.

Inhabitants.—The European and Eurasian population is at present limited, but with the advantage of a Railway to the base of the mountain by which persons from all parts of the country may have easy access to so delightful a climate, it is probable that in a few years hence the Shervaroys will become a favorite resort for those who can absent themselves from the Presidency or other stations for short periods of leave. Increased house accommodation, and improved facilities for procuring supplies from the low country, must be provided before the Shervaroys can hope to attract the number of visitors, its fine climate deserves. The total

number of fixed residents—European and East Indian—I was not able to learn with accuracy, but they probably do not exceed 100, children included. The visitors in July and August averaged about 40, including children.

Native Villages.—The mountain plateau and slopes are scattered over with villages occupied by a tribe called "Vellalers" or "Malayalies." These people, according to their own traditions, originally emigrated from Conjeveram, about 600 years ago, on account of some religious persecution. Their villages are numerous, and are generally built in sheltered valleys, and surrounded with rich crops of the various grains they cultivate. The people have no written records of their history. In features and physical appearance they differ scarcely at all from the natives of the low country adjoining. They speak the same language (Tamil) somewhat corrupted, but they do not appear to have held much intercourse with the low country people, and the Hindoos of Salem can give no account of the hill tribes, nor of their history. They are essentially a timid and harmless people, addicted chiefly to pastoral and agricultural pursuits.

Before Europeans settled at Yercaud, they would flee from their villages in a body at the sight of a white face. In this respect they have altered of late years, and at the present time both men and women are accustomed to work in the various coffee estates under European superintendence. Their villages resemble clusters of enlarged bee-hives more than any thing else. The houses are circular, and the flooring raised upon wooden piles about two feet from the ground, the walls are of split trelissed bamboo with an outer coating of mud. The roof is conical, and thatched with a long coarse grass peculiar to the Hills. In personal habits, like all other Hill tribes, the Malayalies are dirty. They wear a black cumbly, out of doors, but at other times the common cotton cloth of the country, and this is always in a filthy condition. They cultivate only the richest level land, and grow two or three species of millet, wheat, raggee, mustard, dholl, chillies, garlic, &c.

At low elevations, and in small garden plats, tobacco and betel are sometimes grown. They possess herds of buffaloes and black cattle, and a few goats are sometimes met with. Sheep, it is said, do not thrive on these Hills. They probably require more care and attention than natives ever give to their domestic animals. In religion the Malayalies

are Hindoos, but they do not appear to be split up into castes. They do not eat meat, but subsist chiefly on millet, and raggee.

Rice they procure occasionally from the low country. A few of them are beginning to cultivate coffee trees in their gardens. A "head man" or priest settles all social disputes, and they have rarely been known to resort to our law courts. Crime of a serious nature is unknown amongst them, and until the recent organization of a "Mofussil Police," petty thefts, or house-breaking were offences never heard of.

The Hill tribes have a great dislike to the low country. If they ever go to Salem, they dread remaining a night there. The water of the plains they believe causes sickness,—cholera, fevers, &c. They generally enjoy good health, and there is certainly nothing in their appearance to indicate that they are constantly subjected to malarious influences. A coffee planter of great experience, informs me that he has an impression that they are not a long-lived race. He states that an old man or woman is seldom seen. My own observations go to corroborate the truth of this statement.

Diseases of the Native Inhabitants.—Small-pox occasionally appears, and is much dreaded by the people on account of its fatality. Vaccination has as yet made but little progress amongst them.

Fever of an intermittent or remittent type is the common disease of the Hill natives, and they suffer from it especially after the early rains in May and June, and before the regular setting in of the S. W. monsoon.

The wise precaution of sleeping at an elevation of some feet above the level of the soil, which is universal amongst them, has probably been learnt by experience.

Many of the villages are on low ground, and at an elevation known to be malarious.

Bowel Complaints, chiefly diarrhœa and dysenteric affection, the sequelæ of fevers, are not uncommon, at the termination of the hot, dry season.

Epidemic Cholera has never prevailed on the Shervaroys. For the last 40 years there has been a daily stream of human intercourse between the Hills and Salem—the latter, a town from which the cholera poison is seldom or never absent. Coolies and others have contracted cholera in Salem and died of the disease on the Hills; but it has never spread

or assumed an epidemic form; some conditions necessary to its propagation are evidently wanting.

Skin diseases do not appear to be common amongst them. Nor do they suffer from guinea-worm, a disease which is very prevalent in the low country around Salem.

The number of Malayalies inhabiting the Hills, I have been unable to ascertain, but it is supposed that the population is increasing. A few years ago the amount of kist paid to the State by these people amounted to 350 Rupees yearly. It is now ten times that amount. They have no vested interest in the soil, beyond the small patches which they cultivate.

Antiquities.—The Hill Pagodas are at the best but rude structures, and although some of them are venerable looking affairs, it seems most probable that they were built subsequent to the occupation of the mountain by the present race. The pagodas have no pretension to architectural beauty. They are generally built of uncut stone, without cement, and roofed with the common thatch of the country, and the whole building enclosed by an outer wall. Most of the villages have "Sawmy Houses," and these are generally to be met with under groves of trees near the villages. The structure is very simple—flat stones on end for the sides and back, and another on the top. These little houses generally stand about 2½ feet from the ground, and five or six of them are generally found together and arranged in a semicircle. Some of them contain stones with rudely carved images thereon, to which the villagers bring and leave their votive offerings of flowers, oil, grain, &c.

Cairns or Cromlechs.—On the estate of Mr. Daly, a coffee planter at Yercaud, a considerable number of these highly interesting and curious relics of a bye-gone race, have been observed. They do not differ materially from the cairns which have been found on the Neilgherry Hills, in several parts of the Coimbatore district, in North Arcot, and in many other parts of India. It is needless to observe that the present race of inhabitants know nothing about them, and that there are no traditions of any kind relating to them. By the courtesy of the proprietor of the soil, and with the assistance of friends who procured labourers for the purpose, two of these structures were examined during my recent visit to the Shervaroys.

The one first chosen for examination consisted of a very perfect circle of large stones, deeply imbedded in the soil,

and enclosing a space about 12 feet in diameter, the centre of which contained an irregular pile of stones of a larger size. On removing these as well as the outer circle, we soon came upon solid rock, and there was no trace of any chamber or vault.

The second cairn selected for examination was of larger size, and encircled with a double row of stones. After some little excavation, a chamber, about 3½ feet in width, by 6 feet in length and 3 feet in depth, was hit upon. The walls of the chamber were made up of flat stones, set on edge, and one end was open. It had no floor of stone, but the large vase contained in it rested upon the soil. The large flat stone, which formed the roof of the chamber, had been removed a short time before for building purposes. In the centre of this chamber was found a large urn-like vase in very fair preservation, containing two smaller vessels of pottery.

They were much broken and displaced by the roots of some large trees adjoining traversing the chamber, but by careful excavation the shape of the outer vase was distinctly made out.

It appeared to have stood about 2½ feet high, and at its widest part, near the top, to have been about the same in diameter. It tapered off gradually to the bottom, which was nearly flat and about twelve inches across. The structure of the pottery showed that it had been badly baked, the inner third being black. The smaller vessels appear to have been made of finer clay, and to have been more thoroughly baked.

Amongst the loose earth in the excavation was found, an iron spear head, a good deal corroded on the surface, but in very fair preservation. It measured about eight inches in length, and three in breadth at the widest part. The top of the spear had been broken off.

So numerous were these cairns a few years ago, that a number of them were broken up on account of the flat stones, of which the chambers are built, and with which Mr. Daly has constructed a large drying floor on his coffee estate. They lie generally near the surface, but in some instances the chambers have been found six feet below it. In some, small sickles or grass knives and whet stones have been discovered, but as a rule nothing but pottery has been observed. There are still a considerable number of cairns undisturbed.

Geology.—The Shervaroy mountain presents but few fea-

tures of interest to the Geologist. In common with all our hill ranges in Southern India the basic rocks are of the metamorphic series, and consist chiefly of gneiss, in its varied forms. At the base of the Hills on the Salem side, ferruginous hornblende and specular iron ore are found. Some of the low ranges in the neighbourhood are almost entirely made up of magnetic iron ore. The quality of the steel and iron ores of this district, has long been known to be very superior, and at one time the Porto Novo Iron Company drew their supplies of ore from this source. On the Hill plateau the ferruginous rocks are not met with, in any quantity, although the soil contains a considerable proportion of iron. There is a good deal of clay iron stone, in the laterite, which covers the Hill sides and summits.

The lamination of the gneiss is in most parts very well marked ; the surface rocks splitting vertically, and the line of foliation being generally S. E. and N. W. Large veins of quartz and feltspar are met with here and there, and mostly running at right angles to the lamination of the gneiss. The lamination appears to be due to the intermixture of a softer and more easily decomposed material in which mica enters largely. This on exposure soon crumbles away, leaving the more solid gneiss standing out in thin plates, and gives to some of the weather-worn rocks the appearance of a number of slates standing on end. Granite of a coarse crystallization was observed in one or two situations.

The whole of the mountain plateau appears at one time to have been covered by that peculiar formation which we term "laterite;" near Yercaud, and in fact every where except on the "Green Hills," and certain undulating saddles of land, it has been washed away, leaving the bare gneiss exposed. The highest of the Green Hills is still covered with laterite, which in many places is of great thickness. In proof that the laterite has been washed down into the valleys, it may be mentioned that on inspecting a recent cutting on the side of a hill for the formation of a new road, a considerable deposit of laterite was found overlying dark vegetable soil. In six feet of the cutting were noticed the following :—

	Depth.
Black vegetable mould.....	1 foot.
Laterite and gravel..... ...	2 feet.
Blackish soil.....	2 feet.
Red clay and gravel.....	Beneath.

The peak from which the laterite in this instance must have been washed down was quite bare.

Limestone.—No deposit of limestone, either crystalline or tufaceous, has been discovered on the Shervaroys. "Kunkúr" abounds in the Salem valley, and bands of crystalline limestone have been found in the district. The want of this useful material is a great drawback to builders, as every particle of lime has to be carried up the Salem ghaut, on the backs of bullocks. The same observation, however, applies to the Neilgherries, and there the absence of limestone has not proved an insuperable obstacle to building operations. There is no deficiency of lime in the soil of the Shervaroys, if one may judge from the number of land shells every where apparent on the surface.

Soil.—In forest-cleared land on the slopes of the Hills, and in the deeper valleys, the surface soil consists of a dark vegetable mould, of considerable depth, and in soil of this description the coffee plant luxuriates. The soil rests generally upon a reddish clay, which latter appears to have resulted from the decomposition of the surface rocks and laterite covering them. In the more open parts of the Hills, the soil is of light brown color, and shallower, resting on a similar sub-soil to that previously noticed. There are a few marshy situations, where the natural outlets of hill streams have been obstructed by alluvial deposits, in which peat bogs have formed, but these are not numerous nor of much value for fuel.

Water.—The Hill streams are numerous, though of no great size, and from the sloping nature of the ground, they very rapidly find their way to the low country. The Tyromany river which flows by, and forms the boundary of, the town of Salem on the north and west sides, has its origin in the Shervaroys. The Hill streams soon diminish in volume after the rainy seasons are over, and in the months of January, February, March, and April many of them dry up. At Yercaud a good sized lake has been formed by damming up the lower end of a small stream.

Drinking water is generally obtained by sinking wells in suitable localities. The running water has generally a taste about it which is not quite pleasant. The Hill natives believe that the bad quality of their water in the hot months is the cause of the endemic fever, which affects them at that season. Some of the well water is excellent.

Mr. Fasken in his report on the Shervaroy in the year 1825, noticed that the Hill slopes bore marks of embankment by the ancestors of the present inhabitants, and that considerable skill had been shown in utilising the water and preserving the soil from being washed away. For this purpose he says:—

"They have formed embankments for some way up the sides of the Hills, and have thus raised it into so many flats, one rising above another, somewhat like the steps of a chair. By this contrivance the water as it descends, loses its collective strength, and becomes equally diffused over the whole arable surface, and thus the soil is preserved entire."

Climate.—From its elevation and geographical position it may be inferred that the Shervaroy mountain range possesses a climate of very equal temperature. Partaking as it does of both monsoons, the rain fall is considerable, and the moisture of the air pretty equal and constant during the monsoons. The diurnal and seasonal variations in the pressure of the atmosphere are very regular, and allowing for the higher elevation, differ scarcely at all from what has been observed on the sea level in similar latitudes. The temperature of the air in the shade is remarkably even throughout the year.

In a room without a fire, and to which the atmosphere from outside has free access, the thermometer seldom stands below 65°, and rarely exceeds 75° in the hottest month. During the period of my residence (July and August) the thermometer in the house did not vary more than four degrees of Fahrenheit. In a verandah sheltered from the sun's rays during the same period, the maximum registered was 72°, and minimum 59°.

Mr. Marrett, Civil Surgeon of Salem, gives the following as the monthly means of a series of thermometrical observations at Yercaud—

Dry Bulb.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Maximum.....	72	73	78	78	78	74	72	72	76	72	71	70
Minimum.....	60	61	62	63	57	60	68	59·5	68	60	60	60

A Register by Mr. Beattie, Resident Engineer of the

Madras Railway, differs but slightly from the above. In his observations the thermometer was kept *inside* the house.

Dry Bulb.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Maximum.....	70	70	73	75	75	72	72	72	70	70	70	70
Minimum.....	60	60	63	68	68	67	67	65	65	63	63	60

Assistant Surgeon England, who was the first person officially employed in the survey of the Shervaroys, writing in the month of April 1824, remarked as follows:—

"The hygrometer indicates a considerable dryness of the air, the point of condensation being generally from 20 to 30 degrees lower than the temperature of the atmosphere. The winds which are mostly from the east are often, during the middle portions of the day, two degrees warmer than the air of a confined room. I have frequently exposed the thermometer to the sun at noon during a series of serene and cloudless days, and it has been usually between 80° and 84°, and never above 90°, which therefore does not show a very great disproportion between the sun and shade, and by no means so much I imagine as will be found to exist at this dry season on the most elevated parts of the Neilgherry, where the sudden transitions from the influence of the sun to the shade frequently produce unpleasant rigors in weakly subjects."

It is to be regretted that no accurate and continued observations have as yet been made with the hygrometer and actinometer, and that the meteorology of the Shervaroy climate is still so imperfect.

To the senses, the air has a delightful softness after the first rain fall in June, and is certainly much pleasanter to persons who have long resided on the plains than the more bracing atmosphere of the Neilgherry Hills. The air on the Green Hills feels much cooler and fresher, though it cannot really be more than two degrees below that at Yercaud. For two or three days in January, the valleys about the Green Hills suffer from hoar frost, and the coffee trees planted in the lower ground, require protection, at this season.

Rain fall.—The Shervaroys attract and condense many of the passing clouds which sweep over the Western Ghauts during the South-west monsoon. Heavy showers, accompa-

nied by thunder, begin to fall towards the end of May, or beginning of June, and if the rains are delayed from any cause, this portion of the year is generally marked by an accession of febrile disorders, of the remittent or intermittent type. July and August may be considered wet months. In September the South-west monsoon ceases. The North-east monsoon, although of shorter duration than that from the South-west, usually brings the heaviest fall of rain.

It is strange that the average rain fall on these Hills should never have been determined, but after careful inquiry I cannot learn that any trustworthy observations have been made. It is stated generally that the total amount is much the same as that of the adjoining low country, which averages about 45 inches in the year; but there is good reason to suppose that the fall of rain on the Hills much exceeds that on the plains. During a residence of 30 days (in July and August) rain fell in greater or lesser quantity on, at least, 24 days of that period. Rain was often observed to fall on the Hills towards evening, while the sun was seen shining upon the adjoining low country.

Prevailing Winds.—These depend upon the monsoons. The winds from the N. E. blow pretty steadily from October until April, when they become variable, and continue unsettled until the setting in of the S. W. monsoon, when the S. W. wind prevails from June until September.

Seasons.—Mr. Marrett records the following summary of his experience—extending over seven years—of the peculiarities of the seasons—

"The month of January is generally fair, clear and dry, and the nights cold. The same remark may also be applied to February. In March the weather is warmer, and there are occasional slight showers. April is a warm month, in fact with the exception of May, the warmest. In May the air is close, accompanied with thunder storms, and towards the end of the month smart showers fall, preparatory to the monsoon. Early in June the S. W. monsoon sets in and continues more or less throughout July and August. The next two months are generally fine, and about the end of October the N. E. monsoon sets in and continues through November and part of December, in which months the weather is misty and cold."

During the rainy season the mountain is often enveloped in clouds, which sometimes deposit a fine drizzle, and sometimes pass away as dry fog. As the rains begin to abate or intermit, masses of dry fleecy clouds collect in the large valleys and ravines on the mountain slopes, and as the day

advances, and the atmosphere becomes rarefied, these gradually ascend and sweep along the surface of the mountain summit, still preserving their defined shape. As the dry season approaches these mists disappear, and the atmosphere of the Hills changes to a light bluish haze.

It has been inferred by some persons that these mists, sweeping as they do over jungly tracts and localities known to be laden with malaria, bring up with them the fever poison; but this theory is sufficiently disproved by the fact that, in the months when cloud and mist most prevail, the Hills are invariably salubrious, and in the dry months, when the atmosphere is perfectly clear, malarious fevers are not infrequent. Mr. Leslie, the Medical Officer of Coonoor on the Neilgherry Hills, has recently arrived at similar conclusions with regard to the mists which roll up from the low country and spread over the sanitarium of which he has charge.

Flora.—The vegetation upon the Shervaroy mountain presents no features of peculiar interest to the Botanist who is conversant with the flora of the mountain ranges of Southern India. The various genera of plants are almost precisely similar to those found at a corresponding elevation on the Pulney, Neilgherry, and Anamullay ranges. The base of the mountain is covered with the common forms of vegetable found in the adjoining low country. The middle region is noticeable from a zone of bamboo jungle, which ascends to a height of about 3,500 feet, where it abruptly terminates. Teak, blackwood and sandalwood, are found in favorable situations, up to this elevation. The teak in a stunted form I have met with on the mountain plateau at an elevation of 4,500 feet. Much of the fine timber on the Hills has been sacrificed in clearing the land for coffee, but there still remain some fine trees of bastard cedar, also the Michislia Champucca of Linnæus, the flowers of which are described as "like gold, and of so strong an aromatic odour that bees will not light upon it."

To give a general list of the plants met with, would occupy too much space, and be foreign to the subject of this paper. It may suffice to quote from a memorandum made by Dr. Cleghorn, Conservator of Forests, who visited the locality of the proposed sanitarium on the Green Hills, in 1858—

"The high grassy summits yield no forest; they are clothed with pasture; here and there the gneiss rocks force their way to the surface and support only herbaceous plants of inferior organization, as lichens, club-mosses, &c.

"The annexed list includes the most characteristic genera of plants observed.

(Cultivated).—Wheat
Potatoes.
Sinapis.
Loquot.

Wild.—The most striking are,
Rubus (2 Species.)
Solanum Giganteum.
Soncisus Oleraceus.
Berberis (2 Species).
Eriochlæna Hookeriana.
Gnaphalium (2 Species).
Crotolaria (Several Species.)
Physalis.
Strobilanthes.
Alsophila.
Aspidium.

"This list is very fragmentary, and only includes the striking features of the local flora. As observed in the beginning of July, however, it is sufficient to indicate the characters of a Sub-Alpine vegetation intermediate between that of Ramandroog and Coonoor. The flora of the Shervaroy Hills is very similar to that of the Yellagiri and Javady ranges, but being a little higher, and more humid, it presents a few additional Alpine species."

The Rhododendron is met with at Coonoor and likewise on the Anamullay Hills, at an elevation of about 5,500 feet and upwards. It is no where to be found on the Shervaroys, and its absence is a proof of the inferior elevation of the latter range.

Amongst the indigenous shrubs giving a character to the vegetation of the Hills, Mr. Fasken mentions in his report a plant which flowers but once in twelve years, and when in bloom tints the whole country with the beautiful blue of its flowers. It appears to belong to the Scrophulariaceæ. I have observed the same plant growing on the Neilgherries. The ripe seed of this shrub is a favorite food of the jungle fowl and wild hog.

Horticulture does not appear to have been much attended to, of late years, although the large number of imported flowers, fruits, and vegetables, show that much of what has been done in this direction has been successful. Of flowers, geraniums, roses, fuschias, heliotrope and verbenas, grow in endless profusion, and without any care or trouble. Hedge

rows are formed of rose bushes, and the young plants spring up naturally from seed.

The soil and climate appear to be peculiarly adapted for gardening operations, and it is almost a matter of surprise, that vegetable gardens on a large scale to supply the Madras market, have not been established. So little attention has been paid to the natural advantages of the situation, that at the present time common vegetables cannot be purchased. Potatoes thrive well, but nobody grows them, and the residents are dependent upon Bangalore for their supply. If some of the land now planted with coffee was laid out for the growth of European vegetables and fruit, the proprietors would probably find it a profitable concern.

The imported plants which thrive readily in this fine soil and climate are very numerous. Amongst them may be mentioned the pear, loquot, peach, apple, guava, strawberry, plantain, citron, orange, lime, lemon, and Brazil cherry.

The Australian acacias, eucalyptus and cassuarina, grow readily. The coffee and tea plants find their natural home in the soil and climate of these Hills, and a few words on the more important productions of Hill cultivation may not be out of place here.

Coffee.—The coffee plant was naturalized in these Hills about 40 years since by — Cockburn, Esq., late of the Madras Civil Service, who, during his official connection with the Salem district, took great interest in developing the resources of the Shervaroys. Mr. Cockburn planted several acres of land, and the original trees are still in existence, some of them of large size and capable of yielding, when in full bearing, twenty five pounds of cleaned coffee. The age at which the fruit-bearing powers of the coffee tree cease, is a question of great interest to those engaged in its cultivation. The trees here alluded to are some of the oldest in the Presidency, and they evince no symptoms of decay. The practice of lopping the central shoots about five feet from the ground, and keeping the plants as bushy as possible, is generally followed here. Some of the coffee plantations are kept in very good order, particularly those belonging to Mr. Fischer, the Zemindar of Salem. But most of them are overrun by noxious weeds, balsams, and a white passion flower, the fruit of which is eaten by jackalls, and the seeds thus scattered far and wide. This flower appears to have been originally introduced as a garden plant, but has now gained

so firm a hold on the soil, that it has become the coffee planters greatest pest, and unless all the land owners unite in efforts to exterminate it, the task will soon be an impossible one. Of the influence of this noxious vegetation upon the sanitary state of the Shervaroys, more will be said hereafter. At the present time there are upwards of 5,000 acres of land under coffee cultivation. The land is generally obtained from Government on perpetual lease, at the rate of one Rupee per acre, per annum. The best sites for coffee have long since been taken up, but there is still much jungle, or forest land available. The average yield in this locality is said to be less than in the Wynaad or in Coorg. A better system of culture, including the use of manure and careful pruning, would doubtless tend to the production of heavier crops. Some planters appear to have fallen into the error of supposing that it is better to cultivate 100 acres badly, than half the quantity well. It is no wonder under such circumstances, that what should be highly cultivated land, is almost more obnoxious to the salubrity of the climate, than the uncleared jungle.

Tea.—The tea plant grows in great luxuriance on these Hills. It was introduced many years ago by Mr. Fischer, from seed supplied to him by Dr. Wallich. Some plants are to be found on the estates of Messrs. Fischer and Richardson. They grow to the height of 20 feet, and flower and seed freely. The plants have not been cultivated with a view to the manufacture of tea, but there seems no reason why it should not succeed as well, or even better than coffee. It does not require so rich a soil as coffee, and consequently may be planted on land unsuitable for the latter.

Oranges.—The soil and climate appear to be peculiarly adapted to the *aurantiaceæ*. The Seville and sweet orange from Mediterranean seed, are very common. The trees grow to a great size, and the fruit is very abundant and of excellent quality. The lemon, lime and shaddock, succeed equally well.

The loquot and pear grow almost wild—the fruit of the latter is large, but rather tasteless. Apples, peaches, figs, and strawberries are plentiful and good in their season.

Localities suitable for the Cinchona Plant.—Mr. Clement Markham in No. VI. of the "Transactions Medical and Physical Society," Bombay, page 356, dismisses the Shervaroy Hills as a fit locality in the following terms:—

"The Shervaroy Hills attain a height of 3,000 feet, and "being quite out of the reach of the S. W. monsoon, they

"are both too low, and too dry for the growth of the cin-"chona plant." Mr. Markham could not have penned this sentence from personal observation, and it is quoted here to illustrate how far an accomplished naturalist may be led astray by trusting to hearsay evidence. The *sholas* around the Green Hills, as regards climate, elevation, soil and moisture, appear to be very suitable for the experimental culture of the cinchonas. This question will probably be soon definitely settled, as individuals interested in it are prepared to superintend the experiment, when a supply of seeds or young plants can be procured.

Fauna.—A complete list of the animal creation, natural to the locality, from want of continued observation, it is impossible to give. Those animals which are hunted by man for amusement or profit, are not sufficiently numerous to tempt the sportsman to forsake the better known shooting grounds of the Neilgherries, the Wynaud and Anamullays. The larger animals more commonly met with, are the tiger, leopard, bear, bison, wild hog, jungle sheep, mouse-deer, hyena, jackall, hare, jungle cat, &c. Tigers are not very often heard of, and generally come from the low country. Cheetas are more numerous. Bison and bears are to be found on the Nagalore side of the Hills. The elk and spotted deer are sometimes met with in the jungle low down on the mountain side. Jungle sheep and hares are common on the Hill plateau, but difficult to shoot, from the thickness of the cover. Jackalls abound on every coffee plantation; they are very fond of the ripe coffee berry, the outer pulp of which they digest, and excrete the true berry in its parchment covering, uninjured. As the animals feed only on the ripest, and most matured fruit, "Jackall coffee" (*i. e.*, the berries which are voided in the excreta,) has a high reputation amongst connoisseurs—it being considered superior in flavour and aroma to that which is cleaned by the usual artificial processes!

Of the feathered creation, which afford occupation to the sportsman, may be mentioned jungle and spur fowl, partridge, quail (2 species), wild pigeon (blue, green, and bronzed varieties), wood-cock and snipe, two species—viz., the common and solitary snipe. The latter are birds of passage, arriving about November and departing early in February.

The Hill natives are fond of shooting and netting game, and so much did they indulge in these pursuits some few years since that the mountain was denuded of every thing worthy of the name of game. Since the prohibition, conse-

quent on the mutinies, of the indiscriminate sale of gunpowder, it is supposed that the smaller kinds of game have been increasing. In pursuit of small game, dogs are required, the jungle being generally too thick for beaters. Woodcock and snipe afford very fair sport in December and January. There are no fish in the hill streams, but a small fresh water crab is common.

A few snakes, mostly harmless varieties, are to be met with, and two or three species of viper. I cannot learn that the Cobra has been found at the elevation of Yercaud. A large brown scorpion is common, especially in rocky places, where it lies under loose stones.

Revenue, Police, &c.—When the Shervaroy mountain first began to attract the attention of the official residents in the Salem district, some forty years ago, the amount of "Kist" or revenue derived from the whole of the Hill villages was 350 Rupees yearly. It is understood that Mr. Fischer of Salem, had some years since the opportunity of securing to "himself and his heirs for ever" the proprietary of the whole mountain, on condition of paying 800 Rupees yearly to the Government. The entire revenue at the present time is upwards of 8,000 Rupees per annum; and as colonisation extends there is every prospect of this amount being doubled or trebled in the next ten years. The revenue from coffee land is about 5,000 Rupees, and from land under native cultivation 3,000. A party of the Revenue Survey establishment has lately been occupied in surveying and planning the cultivated and waste land. A small detachment of police, from the Salem district, is stationed on the Hills.

Medical History of the Shervaroys.—Long before the discovery in 1819 of the cool and bracing climate natural to the summit of the Neilgherry range, the plateau of the Shervaroys had been visited by the resident officials of the Salem Collectorate, and its beautiful climate had obtained a local reputation. In the year 1823, Mr. Richmond, Civil Surgeon of Salem, reported that the "Shiva-rai Hills" were beginning to attract a considerable degree of notice. He remarks "they have been known to the European residents at 'Salem for some years past, and parties have very fre-'quently gone to them for a few days at a time, but it is only 'recently that they have been thought of as a place of abode. 'During the last two months they have been visited by 'nearly twenty gentlemen and ladies, who all enjoyed the

"best possible health, and amongst their followers, in number "about 300, only five cases of fever occurred, which appear "to have been brought on by exposure to the cold night air "and sleeping on the damp ground.

"My first visit to these Hills was in the end of February "and beginning of March 1822, and at a time when they "were considered to be unhealthy. I have been in the "habit of paying them short and frequent visits ever since; "they have likewise been resided on by several gentlemen and "ladies who have all enjoyed the best possible health—indeed "infinitely more so than when residing below. There is "a keen bracing feel in the air that restores the languid "appetite and induces every one to exercise.

"Amongst the numerous followers, I have not known of a "single case of intermittent fever."

So highly were these Hills estimated at the period above referred to, that on a question arising as to the advisableness of building barracks and houses on the Neilgherries, for the reception of invalid officers and men, Sir Thomas Munro, then Governor of Madras, directed that a careful survey should be made of the "Eastern Hills," viz., the Shervaroy and Chendamungalum ranges, which he thought would be more convenient of access, and nearer to low country markets. The survey was entrusted to Mr. England, an Asst. Surgeon on the Madras Establishment, that gentleman having previously visited the Neilgherries, and submitted a very full and comprehensive report on their medical topography. Mr. England commenced his labours in 1823, but from some unexplained cause he was shortly after remanded to regimental duty at Vellore. Early in 1824, on the representation of the Medical Board, the Government ordered him to resume the special duty to which he had been appointed. In April of that year Mr. England forwarded "a "statement of the nearest and best line of communication, "between the Northern and Southern basis of the Shervaroy "mountain." He appears to have recommended the approach to be constructed up the Mulliapooram ghaut, on the N. E. aspect of the Hills, and to have traced a road across the plateau and down the ghaut now used as the road to Salem. Medical officers appear to have made themselves useful in extra professional pursuits then, as now. Writing on the 8th of April 1824, Mr. England intimated that with the aid of a few pioneers to superintend the cooly laborers, he was prepared to construct a passable road across the mountain

at an expense of four thousand rupees. "If there were any "damaged gunpowder in the neighbouring arsenals, the issue "of a moderate quantity would greatly facilitate his labours." This appears to have been the last official communication he ever penned. In it he incidentally alludes to the fact that from long exposure on the slopes of the Hill, he had contracted a severe bilious fever from which he was then recovering. A return of the fever, in a severe form, proved fatal. Mr. England died on the 27th of May 1824.

A Medical officer named McCosh, an Assistant Surgeon of the Madras Establishment, appears to have been on leave at this period on the Shervaroys. He was attacked with jungle remittent fever in its worst form, and died on the 5th June, just ten days after Mr. England's demise. A panic seized upon the European residents who remained, many of them took fever, but I cannot learn that any other fatal cases occurred, at least amongst Government officials. They all fled to Salem, or other stations in the plains. The hot season of 1824 appears to have been unusually prolonged, and fever continued to prevail, until the end of July, by which time the rains had fairly set in. The Hill natives suffered considerably on this occasion, but not so much as those from the low country. Fever appears to have been very prevalent this year in Salem itself. Mr. Richmond, the Civil Surgeon, reported that all the European residents, himself included, were suffering from it in the month of July. Many of these cases probably came from the Shervaroys.

Assistant Surgeon Fasken was specially appointed to succeed Mr. England in the survey of the Hills, and his report dated 24th June 1825, is an able and comprehensive document. His general impression of the place as a sanitarium, was unfavorable.

The Medical Board in their report to Sir Thomas Munro, dated 28th July 1825, thus summed up the disadvantages of the Shervaroys, as brought to notice in the various documents before them—

"These hills are subject to the influence of the causes of fever, and this periodically, giving rise to suspicion that they are of some specific nature, against which no temperament nor habits can guard.

"The period of the year which is thus distinguished by the prevalence of fever, being precisely that at which invalids from the low country have most need of resort to a colder climate, their value to the public is thus destroyed, and though every season may not be

unhealthy, nay, though several successive ones may prove to be healthful, yet as their unhealthiness cannot be foreseen, nor its effects obviated by a retreat even on the first appearance of danger, since the disease will be dormant at times in the constitution, we confess that we do not feel justified in recommending the Shervaroy Hills as a safe place of resort for invalids."

On this report coming before Government the survey of the Shervaroys was ordered to be suspended, and, subsequently, accommodation for invalids was provided at Dimhutty on the Neilgherry range.

The report of Mr. Fasken bears evidence that the unhappy experience of the previous year, in which two of his professional brethren fell victims to the prevailing fever, had not been forgotten by him, and that prejudice had in some degree obscured his sounder judgment. Speaking of the climate, and its effects upon the human frame, he observes for instance, "that the general sensation produced is that of "half heat and half cold, which is just sufficient to parch and "dry the surface of the body, at the same time causing an "uneasy sensation of chilliness within." This description is much exaggerated; instead of being disagreeable there can be no two opinions as to the very pleasing influence of the climate upon the senses, whatever its ulterior effects may be.

Again, Mr. Fasken finds fault with the damp and moisture during the rainy season. Now although this is occasionally a source of discomfort, it is less severely felt, than on the Neilgherry stations, and with fires in the houses it need be no annoyance at all.

Notwithstanding the decision of Government in refusing to utilise these Hills for the location of European sick, they have gradually engaged public attention, and especially from the fact of the soil and climate being favorable to the cultivation of coffee. From 1824 to 1833 there was no severe outbreak of fever. The residents of Salem continued to visit the Hills occasionally for change, and in process of time independent settlers resorted thither, and engaged in coffee planting.

In 1837, Mr. Graham, now Deputy Inspector General of Hospitals in the Pegu Division, but then in medical charge of the Zillah of Salem, after six years of close observation of the Hill climate, remarked as follows :—

"I have observed every year for the last six years, an epidemic accession of fever in May or June, according to the time of the first showers of rain, or preceding the South-west monsoon, between

these showers and the regular setting in of the monsoon, a space of from 15 to 40 days, obtains the period of the prevalence of fever, and which fever ceases when the rains are fairly established.

"It is to be presumed no medical man would recommend these Hills as a place of abode during the period fever may be expected to prevail, but throughout the remainder of the year (fully nine months) experience warrants my saying that a resort to the Shervaroy Hills will be found of benefit in all those diseases for which the Neilgherry Hills are found useful."

As cultivation increased, and the residents and visitors were provided with a more suitable style of house accommodation, so did the yearly visitations of fever become of less moment. Dr. W. Scott, who was Civil Surgeon of Salem for nine years, viz., from 1844 to 1853, thus records his experience of that period :—

"The climate was most salubrious and enjoyable, and in very many respects admirably suited for all classes of Europeans. During all that period there was no sickness of any serious nature endemic to the place, and actual residents, more particularly the Europeans who were well housed, enjoyed, in general, rude health. I always considered the Shervaroys well suited as a sanitarium for Europeans."

The year 1854 was marked by one of those outbreaks of fever, which have tended so much to bring the Shervaroys into disfavour with the public as a safe place of resort during the hot season in the plains. As usual in the unhealthy years, the rains were long delayed, and when the monsoon did break, the rain fall was scantier than is customary. Most of the European residents and visitors, in the months of May and June, suffered from quotidian intermittents, and in several instances the fever assumed a remittent form. From the Protestant Church register of burials I have extracted the casualties during the year, and it may be remarked that they all occurred in the month of *June*.

Name.	Sex.	Age.		Cause of Death.
		Yrs.	Ms.	
J. S.	Male.	54	0	Fever.
C. H. B.	Do.	5	0	Water on the brain.
—— S.	Female.	5	0	Fever.
R. P.	Male.	50	0	Do.
W. C. J.	Do.	0	5	Do.
W. M. B.	Female.	29	0	Nervous exhaustion following Fever.
J. A. S.	Do	0	8	Fever.
G. M. C.	Male.	1	2	Do.

In addition to the fatal cases, several persons were alarmingly ill, and in many instances the disease was obstinate in its periodical recurrence, and only shaken off, after a complete change of climate. It will be observed that most of the fatal cases occurred in young children. Two of the adults were European pensioners who had come to the Hills to settle as coffee planters. The other was a lady well known in Madras, who, during a long and indefatigable attendance upon a sick child, caught the prevailing epidemic, and sank under it. On this occasion the Hill natives and coolies from the low country suffered severely.

In the year 1855, a lady died on the Hills, and the cause of death is registered as "fever." I cannot learn that this was an unhealthy season. From that time to the present there has been no fatal case of fever amongst the European or East Indian community. An extract from the Register for 1855 to 1861, is appended:—

Year.	Name.	Sex.	Age.		Cause of Death.
			Yrs.	Ms.	
1855	C. M. C.	Female.	40	0	Fever.
1856	C. S.	Male.	31	0	Chronic Dysentery.
1857	A. E. C.	Do.	11	0	Cholera.
1859	W. D. D.	Do.	1	7	Inflammatory Sore Throat.
„	V. J. M.	Do.	1	7	Croup.
„	F. E. D.	Female.	5	0	Do.
1860	W. M.	Male.	48	0	Diseased Bladder.
„	C. M.	Female.	0	1	Atrophy.
1861	T. B.	Male.	43	0	Diarrhœa.

The case of "cholera" I am informed occurred in a child recently returned from the low country. The two male adults, aged 48 to 43 respectively, were men suffering from chronic disease, in no way connected with the climate. It is worthy of remark that three children died in 1859 from "Croupy" inflammation. Two of these belonged to the same family and had always lived on the Hills. These are the only instances of croup, so far as I can learn.

The hot season of 1860 was notorious throughout Southern India for its high temperature. The S. W. monsoon was later and scantier than usual. Intermittent fevers prevailed on the Shervaroys, as they always have done under similar conditions. A few visitors suffered, but the residents, whose houses attained a good elevation and who took moderate care of themselves, escaped it altogether.

Thus in the last 40 years, from 1822 to 1861, we have evidence of four unhealthy seasons. These seasons were in all cases marked by unusually high temperature, prolonged drought and failure, or scanty supply of the early monsoon rains. In all these instances, the Hills became perfectly free from the influences of fever, after a copious rain fall, and in no case did the unhealthy season last beyond two months.

So much has been said and thought to the prejudice of the Shervaroy climate, that it is no figure of speech to say that eight people out of every ten one meets in Madras would as soon think of spending their holidays in a tour to the Western Coast of Africa, as on the Shervaroy Hills. They are still looked upon as a hot-bed of fever, and at all seasons dangerous to those who are bold enough to visit them. With the view of dispelling the popular errors on this point, I have at some length given the history of all the unhealthy years, of which I can find any record. The results show that the months of May and June are not always safe—that if the hot season is unusually prolonged and the rains scanty, malarious fevers will be pretty frequent, and the Hill residents liable thereto, until the natural course of the seasons is resumed. The experience of later years also goes far to show that those who live in elevated spots, and in houses well adapted to the climate, who take moderate care of themselves in the way of clothing and diet, and who avoid the lower slopes and valleys, rarely get fever. I was informed by one planter that he had resided nearly twenty years on the Hills, and during that period he twice contracted fever, and on both occasions attributed his illness to long continued daily exposure to sun and heavy rain, and subsequent neglect in changing clothes. Another had resided twelve years on the Green Hills, and had twice been laid up with fever. Children born and reared on the Shervaroys are pictures of health. The healthy appearance of young people is no bad test of a climate, and in this respect the Hills may safely compete with the choicest of our Indian possessions.

Type of Fever.—It is generally supposed that fevers contracted on the Shervaroys are of a peculiarly malignant type. I am not aware that they differ in any material degree from malarious fevers, common to other localities. The most common form is the quotidian intermittent, which, if neglected, not unfrequently terminates in remittent.

The cold or congestive stage in a bad case of Shervaroy

fever is sometimes so violent that patients become suddenly comatose and in young children convulsions are common. These conditions are best met by active stimulants and counter-irritation, and I am informed that the cases thus treated always do well. The early and free exhibition of quinine and stimulants, appears to be generally successful in the treatment of both the intermittent and remittent varieties. Some cases have been known to prove unusually obstinate in the recurrence of paroxysms long after the period of exposure to the sources of the malarious poison. Such cases require a complete change of climate, or a sea voyage, to effect a complete recovery.

Objections to the Shervaroys.—It is impossible to overlook the fact, that a malarious type of fever does occasionally prevail on these Hills, but it need not be the "bugbear" which the public have made it. Granting that once in ten years the climate for a limited period may be insalubrious, we have said all that can be adduced against it. It is only of late years that the treatment of the diseases dependent on malarial poisoning has been well understood; nothing in Indian medicine has been more satisfactory than the gradual diminution of mortality both in European and Native troops, since the more general appreciation of the wonderful powers of quinine in controlling malarious fevers. The Shervaroy fever when it does occur is quite as much under the control of medicine, as the same form of disease elsewhere. There are perhaps no localities in India altogether exempt from the causes of fever. The Neilgherry Hills, our favourite Sanitarium, certainly form no exception to this general statement. Remittent and intermittent fevers, just before the setting in of the monsoon rains, and after the first showers, are not uncommon there.

In the hot season of 1860 (May and June) the Regiment stationed at Wellington lost five men from remittent fever, whereas although fever was prevalent on the Shervaroys during the same period, no fatal case occurred.

The residents of Coonoor, a station which is nearly 1,000 feet higher than Yercaud, occasionally suffer from malarious fevers. Notwithstanding these drawbacks, the Neilgherry stations have never been objected to, on the score of fever. And it is notorious that Europeans do preserve their health, in these temperate regions, much better than they can possibly do in the plains. This observation applies with equal force to the European residents on the Shervaroys who are

generally a healthy looking and robust people, and who certainly do not give one the impression of being "malaria-stricken."

Admitting the full force of the objection that the Hills are occasionally malarious, it is no less certain that they are free from many of those sources of disease, which abound in the plains. Malignant cholera and dysentery destroy one half of those who die in our European armies located on the plains. "Fevers," on the other hand, do not cause more than one-tenth of the whole mortality. There can be no question that where a choice of evils is to be had, it is best to adopt the minor one. Our statistics show that the mortality from fevers, including the "continued" and "typhoid" varieties, in the Madras Presidency do not exceed one per cent., whereas of every two Europeans attacked by the cholera-poison one dies, and of every 100 cases of dysentery treated, seven prove fatal.

The Shervaroy Hills have as yet enjoyed an immunity from cholera, and it is evident that with due attention to sanitation, this terrible pest can never obtain a footing. Its germs have, as before shown, been frequently introduced, but the conditions necesary to their development, have as yet been wanting. Dysentery, hepatitis and insolation are diseases unknown amongst Europeans in the Shervaroy climate.

The Shervaroys as a Sanitarium.—The South of India is so abundantly provided with mountainous tracts, adapted for European settlements, that we are become perhaps a little fastidious in our choice.

While the residents of the Deccan or Central India would rejoice in the possession of our least valued mountain range, we hesitate in utilising those of undoubted salubrity. The Pulney mountains, the Anamallay, and Shervaroy ranges are only beginning to be appreciated at their true worth. It is not very probable that the Government will at present occupy any of these ranges as military sanitaria. There is ample barrack accommodation on the Neilgherries for all the invalids likely to profit by a residence in Hill climates, and the time has not yet arrived, when the doctrine involved in the maxim "prevention is better than cure," as applied to the health of our European forces, can be accepted in its full significance. When this desirable state of things is brought about, we may look forward to the occupation of our Hill ranges, not by invalids who have been broken down by tropical disease,

but by persons whose bodily vigour we desire to maintain unimpaired. But long before the military occupation of our Hill ranges be an accomplished fact, we may expect to see them entered upon as new fields of enterprise, by the representatives of Anglo-Saxon industry and commerce. There is room enough to spare for the coffee and tea planter, and for the cultivator of other useful produce suited to the teeming population of the plains.

It is not too much perhaps to expect that a few years hence the beautiful "Green Hills" will be dotted over with neat cottages and smiling gardens, where the families of the Madras merchant, or official, can escape the exhausting heat of the plains, and have some enjoyment during their tropical exile, and where "pater familias" himself may profitably resort for his weekly day of rest. When the Ahtoor Ghaut is opened, there will be no difficulty in reaching the Green Hills or Nagalore, in twelve hours from Madras.

Sanitary condition of Yercaud.—The neglected condition of some coffee estates has been already alluded to, and the bearing of this upon the salubrity of the Hills is, I conceive, very important. It is true that a severe outbreak of fever occurred in 1824, before the cultivation of coffee generally commenced, and that the conditions necessary to the production of malaria, have always been more or less present for a limited period in each year. Still there can be no question as to the consequence of allowing noxious weeds and creepers to flourish unchecked in the land appropriated to coffee. In a climate and soil like that of the Shervaroys, weeds spring up and flourish with a luxuriance unknown in less favored regions. It is a significant fact that fever always begins when the decayed weeds and vegetable matter which have been dried up in the hot weather, are moistened by the first showers of rain, and again subjected to the drying process. The accumulation of decayed vegetable matter, in some of the hedgerows, which are allowed to grow unchecked, is enormous. I have often thrust a walking stick from 12 to 18 inches deep into loose soil thus composed. The balsams and the passion flowers, before alluded to, contribute the largest share of this decaying matter. Before the cultivation of the land, it was customary to set fire to the dried grass and scrub, once a year, but this procedure cannot be followed upon a coffee estate, and hence the greater need of strict attention to cleanliness, and the destruction of all noxious

plants before they have arrived at maturity. If attention be not paid to this subject Yercaud will, probably in a few years, be in a worse condition as to salubrity than when it was an uninhabited jungle. I am inclined to regard the malarial poison of these Hills as entirely of local origin, and to be eradicated hereafter, by judicious cultivation and clearing of much of the jungle at present existing.

Climate Suitable for Invalids.—It is not improbable that some forms of disease, which are aggravated by the Neilgherry climate, may be treated with benefit on the Shervaroy Hills—such as rheumatism, chronic affection of the liver, bowels, air passages, &c. It is not, however, to invalids suffering from organic disease that our mountain climates hold out much ground of hope; but rather to those who are simply exhausted in mind and body from prolonged exposure to a high temperature in the low country, and who need rest from work and a cooler air to breathe. These are the cases which benefit in a remarkable degree from a short residence on the Shervaroys.

Conclusion.—In bringing to a close this general notice of the Shervaroys, I have to acknowledge the kindness of the Principal Inspector General, who has permitted me to make use of the official records of his office bearing upon the subject. Amongst these I have been particularly indebted to the topographical reports of Mr. Fasken, Mr. Graham and Mr. Marrett, and also to a recent report by Dr. Macpherson, Inspector General of Hospitals, on the site of a proposed Sanitarium on the Green Hills.

September, 1861.

ART. XV.—*Notes on some of the Indigenous Medical Plants of India.* By EDWARD JOHN WARING, Esq., Physician to His Highness the Rajah of Travancore.

ANTIDOTES TO SNAKE-BITES.

IN European systematic works on Materia Medica, the class of medicines designated Alexipharmics, or Alexiterics, comprising remedies used as antidotes for the bites of venemous reptiles, &c., has long since been banished, probably for two reasons; first, because the snakes and noxious reptiles of Europe are few and comparatively innocuous, and second-

ly, because the alleged remedies were found to be of little efficacy, and uncertain in their operation.

In India, however, a very different state of things exists, at any rate in the first respect, many parts abounding with snakes of the deadliest kinds. This is well illustrated by the fact recorded by Dr. Imlach, Civil Surgeon at Shikarpore, (whose interesting paper on Snake-bites in Scinde[1] abounds in important statistical facts) that in one season, in one Collectorate, Shikarpore, no less than 306 cases of snake-bites were officially reported, the mortality being 63, or about 20·58 per cent. Reports from other districts, which may be set down as comprising about one-fifth of Scinde, are furnished, from which it may be concluded that the deaths from this cause alone in the whole province in one season, were not less than 300. There is reason, however, for thinking that a great number of cases are never reported at all, and that consequently the mortality is much in excess of the above estimate (p. 83). Another example may be mentioned taken from Capt. Munro's interesting paper, entitled "Antidotes to Snake-bites,"[2] to which we shall often have occasion to refer: it is that of the Zillah of Midnapore, where official returns show that during a period of twenty-one months, (from January 1845 to October 1846,) no less than 402 deaths had occurred in that Zillah alone, from snake-bites. This state of things, however, is happily not common throughout India;—nay, there are many parts in which snakes are scarce, and death from a snake-bite a rare event. During my eight years' residence in Travancore, only two cases have fallen under my notice; one trivial, the other fatal; and Dr. J. Sperschneider of the Nair Brigade informs me that the records of that corps, during a long series of years, present not one single casuality from this cause. The late Dr. Nicholson, alluding to Calcutta, states that he was not aware of a single case of snake-bite having been admitted into the General Hospital in that city, during a period of thirty years. Capt. Munro states that during his own travels in India, he has seen Cobras, the commonest and most deadly snake of India, the most numerous at and about Bangalore, then in the Neermul jungles in Central India, and next at Agra.

The subject of antidotes to snake-bites, it must be admitted, is beset with difficulties: let us glance at a few of them.

(1) Trans. of Med. and Phys. Soc. of Bombay, vol. iii., N. S., p. 80, 1855-56.
(2) Journ. of Agri. Hort. Soc. of India, vol. vi., P. 1, p. 1.

1. The ignorance which prevails on the subject of poisonous and non-poisonous snakes. The scientific man is aware that those snakes only are poisonous which are furnished with the regular poison apparatus consisting of a secreting gland, a fissured fang or fangs, and a peculiar set of muscles for the ejection of the poison. This knowledge is confined to the few amongst the mass of the people, especially in the tropics; all varieties of snakes are considered to be poisonous, even some of the most harmless from their fierce or hideous appearance are held in dread, and deemed deadly. Here arises our first difficulty; for example, a patient is brought, bitten, it is asserted, by a professedly poisonous, but in reality a perfectly innocuous, snake. There may be no opportunities for the practitioner to satisfy himself as to the true character of the snake; it may have escaped, or the bite may have been inflicted during the darkness of night; hence, no means are left of judging of the true nature of the bite, beyond what is afforded by the symptoms present; and here we may observe that the influence of fear and fright induces a depression of the nervous system very analogous, though minor in intensity, to that induced by the bite of a truly venemous snake. Under these circumstances, some remedy is applied, and the patient, getting over his alarm, is pronounced cured; and what more natural than for both the practitioner and the by-standers to ascribe the cure to the remedy employed, whilst, perhaps, in truth it has exercised no influence at all. This is especially likely to be the case if the medicine be one which is held in repute in such cases.

Supposing, however, that there remains no doubt as to the poisonous nature of the snake which inflicted the bite, difficulties still present themselves; we will enumerate only two.

First, we are aware that the poison of the snake is a secretion, and that when the portion already secreted and collected in the poison reservoirs is ejected, it requires time for a second portion to be secreted, hence the first bite of a poisonous snake may prove fatal, whilst the second from the same snake may prove comparatively harmless. Snake charlatans in India make use of this knowledge for their own purposes. To prove, say they, that this is in truth a venemous snake, it shall first bite a fowl, and then it shall bite me. If you see the fowl die whilst I escape, it is clear that I possess some charm or protective power. Then, irritating the snake for some time, the fowl is duly bitten, and

in a few minutes perhaps expires; the "charmer" then presents his hand, is bitten, and manifests no single ill symptom. The explanation is that the whole stock of poison on hand has been expended on the fowl, and that the charmer, as a general rule, is as safe, as if bitten by a perfectly innocuous snake.* This circumstance places a great difficulty in the way of speaking with confidence of the effects of remedies in snake-bites; as, of course, it is almost impossible to ascertain, in the majority of cases, whether the bite under treatment may not have been the second or even the third, which the snake may have inflicted within a few minutes. Of three or four persons bitten in rapid succession, the probability is that the last one or two will recover under the simplest remedies, whilst the first bitten will succumb under the best directed measures, so that to ascribe in all cases the cure to the remedy employed, would be manifestly erroneous.

The second difficulty arises from the period that has elapsed after the infliction of the bite, before the patient comes under treatment. A remedy, with other auxiliary means, resorted to immediately after the injury, stands a far greater chance of success than if nothing be done for some hours, and the poison be allowed to become absorbed into the system. Under the latter condition, really effective measures stand comparatively little chance, and any virtue they may actually possess, is apt to fall into undeserved disrepute. Again, if a little longer period be allowed to elapse and the patient survive, it is probable that the power of the poison is in the progress of being overcome, either by the *Vis Medicatrix Naturæ*, or by remedial measures; and here, if any remedy, even of the most innocent quality, be resorted to, it may get undeserved credit for contributing to the recovery, which, in truth, has been accomplished by other means.

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* Dr. Imlach (Op. cit. p. 101) relates a curious circumstance, which seems to show that there are exceptions to this general rule. On one occasion, after a cobra had fairly bitten a dog twice, and whilst being irritated again to bite, he caught hold of the thumb of the Jogee, who was a collector of reptiles, and who, in less than half an hour, exhibited all the symptoms consequent on the absorption of the poison. At the time of the accident the man laughed at the occurrence as if he had been the erring party in allowing himself to be bitten, and although he was well acquainted with the poisonous nature of the venom of the cobra, yet he inclined to take no further precaution than simply with a piece of rag to wipe off from the thumb the two drops of blood which appeared on the parts where the fangs had penetrated. The symptoms which supervened were of a very severe character, and Dr. Imlach considers that the man's life was saved only by the early use of brandy, ammonia, and cauterization with potassa fusa.

The last source of difficulty in determining the value of antidotes to snake-bites which we shall mention, arises from the concomitant remedial measures which have been resorted to. The application of a ligature above the wound, suction of the bite, the application of any caustic, the excision of the bitten part, all or each exercises a powerful influence on the course of the case, and any remedy given internally, which might appear to have a beneficial effect where these measures are resorted to, may fail to influence or mitigate a single symptom where they have been neglected; and the poison, allowed to become absorbed, exercises its full influence on the system—nay, even the vehicle employed for the administration of a remedy internally, may prove a source of fallacy; for as one of the prominent symptoms is debility and depression, diffusible stimulants, as wine, brandy, or arrack, are often empirically prescribed freely, even by those ignorant of the true principles of treatment, and if a reputed remedy be given conjointly with one of these, and good effects follow, they are unhesitatingly ascribed to the "antidote," and not to the alcoholic stimulant, which, after all, may have been the cause of the beneficial change.

With these long preliminary remarks, which are necessary in order to place the statements made in the subsequent part of this paper in their true light, and to obtain for them a proper and just estimate, we will now proceed to the consideration of some of those indigenous plants of India, which have obtained repute as antidotes to snake-bites.

We feel no hesitation at commencing our inquiry by considering the Natural Order, Aristolochiaceæ, in which a specific for snake-bites, if indeed such a thing exists in the vegetable kingdom, may be more fairly looked for than in any other Natural Order. It is indeed very remarkable how, in all ages and in all countries, far removed from each other, the various species of Aristolochia have been regarded as efficacious remedies for the prevention and cure of the evil effects arising from the bites of venemous reptiles. Amongst the ancients we find Theophrastus,[1] Dioscorides,[2] and Pliny,[3] speaking of the virtues of the antidotal powers of the Aristolochias; Pliny, indeed, devotes a whole chapter (xxv, cap. 55) to the consideration of the uses of plants of this genus, for injuries inflicted by serpents. Those to which

(1) Hist. Plant. Lib. iv., cap. 15.
(2) Mat. Med. Lib. iii., cap. 6.
(3) Hist. Nat. xxv., cap. 54-55.

he appears particularly to allude are;—*A. rotunda*, *A. longa*, *A. clematis*, (Linn.) and *A. plistolochia*, all natives of Southern Europe. In Peru, *A. fragrantissima* is administered internally as an antidote in bites of poisonous snakes.(1) In the Brazils, *A. cymbifera*, (Mart.) *A. macroura*, and other allied species, are employed for a similar purpose (Martius).(2) In the West Indies, *A. trilobata* and *A. odoratissima* are regarded as possessing considerable powers in counteracting the poison of serpents.(3) In the Southern portions of the United States, the Indians classed the *A. serpentaria* amongst their best remedies in these cases, and it was in this character that it was first brought to the notice of the European settlers, and that it obtained its specific name. In Mexico, a decoction of the root of *A. turbacensis* (Kunth.) is esteemed a remedy against snake-bites.(4) In Arabia, according to Forskhal,(5) the bruised leaves of *A. sempervirens* are employed for a similar purpose, both externally and internally. In Carthagena, *A. anguicida*, Linn., there called *Contra-capitan* or *snake poison*, is regarded by the natives as sufficient to counteract the poison of the deadliest snakes (Hamilton).(6) According to the opinion of Dr. Hancock, the far-famed Guaco of South America is an Aristolochia, but it is now generally referred to the genus Mikania, of the Nat. Ord. Compositæ. These do not comprise nearly all the Aristolochias in use, in various parts of the world, as antidotes in snake-bites; but even with these facts before us, we may reasonably ask how far the Indian species possess analogous properties. Unfortunately, the number of species inhabiting India is very small, not exceeding nine at the outside, including those of Cochin China and Ceylon; yet of these, three, *A. Indica*, *A. bracteata*, and *Bragantia Wallichii*, are found to enjoy the reputation accorded to allied species of other lands.

Aristolochia Indica.
Ishwur-mool. (Hind.)
Perumarundoo (Tam.)

The first, *Aristolochia Indica* of Linnæus(7) and Roxburgh,(8) the *Carulu-ragon* of Rheede,(9) and the *Radix puloronica* or *Accar puloron* of Rumphius,(10) a twining shrubby plant, with obovate or wedge-shaped leaves, and purplish flowers in axillary racemes, is common

(1) Alibert Mat. Med. iii., p. 71.
(2) Mat. Med. Bras., p. 108.
(3) Lunan Hort., June 1, p. 232.
(4) Humboldt Nov. Gen. ii., p. 149.
(5) Flor. Ægypt. Arab., p. 157.
(6) Pharm. Journ. 1846, vol. v., p. 61.
(7) Sp. Plant, 1362.
(8) Flor. Ind. iii., p. 489.
(9) Hort. Mal. viii., p. 18 to 25.
(10) Herb. Amb. v., p. 476, tab. 177.

in many parts of India, extending to Ceylon, Burmah, Java, Penang, Cochin China, &c. It is known by the names of *Ishwara*, *Hari*, (Sans.) *Isharmel*, or *Ishwur-mool*, (Hind.) *Ishwar-mool*, (Beng.) *Sacsanda*, (Cing.) *Isperie*, (Can.) *Perumarundoo*, (Tam.) *Dúlagooela* and *Iswara chettu*, (Tel.) *Wallas*, (Jav.) A good figure of it will be found in Wight's Icones, vi., tab. 1858.

The early Portuguese settlers on the Western Coast of India appear to have been first acquainted with the use of the root of this plant, in the treatment of snake-bites; a knowledge derived in all probability from the natives, and hence it was designated by them *Raiz de cobra*. Rheede (Op. cit.) speaks highly of it as an antidote in these cases, and Burmain[1] speaks of the esteem in which it was held by the Cingalese in his day, (1737) "*Contra morbos venenatos.*" Dr. Russel[2] speaks of it (1796) as being held in high repute as an antidote, but he does not appear to have made any trials with it, except with the view of ascertaining whether the cobra entertained any aversion to its presence, which it apparently does not, or at any rate did not evince in any way. The experiment was probably undertaken with the view of testing the truth of the Hindustani proverb, "*By Ishwur-mool the serpent is silenced,*" which is thus explained by the Rev. J. Long.[3] "The smell of the Ishwurmul is used to stupify snakes, who therefore dread it as the thieves do the magistrate." The root, or rather the root bark, is an aromatic bitter tonic, in which character it has been already considered amongst the Indigenous Tonics.[4]

It is to the leaves, however, that we would now direct especial attention. They were first brought to notice in 1846, by Mr. Lowther, who in some communications to the Agri-Horticultural Society of India,[5] related the following facts which fell under his own observation. The facts which he relates as occurring in the experience of others, have been

(1) Thes. Zeylan., p. 33.

(2) On Indian Serpents, vol. 1, p. 86. For the use of a copy of this valuable and scarce book I am indebted to His Highness the Maha Rajah of Travancore.

(3) Journ. Agri. Hort. Soc. of India xi., P. 1, p. 55. It is not a little curious that the ancient Romans held a somewhat similar belief with regard to *A. phistolochia;* thus we find Pliny (Lib. xv., cap. 55) stating that a branch of this plant suspended over the hearth is sufficient to make all serpents leave the house.

(4) Indian Annals of Med. Science, vol. v., p. 48.

(5) Journal vol. v., pp. 138, 742.

purposely omitted, as being apparently doubtful and untrustworthy. Of his own personal experience he speaks as follows:

"On the 5th of last month, I had the satisfaction of treating a case successfully, in which life appeared to be quite extinct. A young woman was brought to my door on a charpoy, at 9 o'clock at night, who was stated to have been bitten in the foot at 6 in the evening. The cold clammy sweat of death was upon her. Pulsation had entirely ceased, and my first impulse was to send the body away. I had heard from the gentleman who had given me the plant, that he had witnessed the cure of a woman by the mere external application of the bruised leaf, and the "Zuhr Mohra," a black stone used so commonly by the snake catchers. Hopeless as the case was, I directed some bruised leaves to be rubbed over her forehead, and her nostrils plugged with it. In the course of five minutes I observed a slight quivering of the lip; her mouth was then forced open, and a portion of the juice of four pounded leaves entered her stomach involuntarily; a little after this she recovered the power of deglutition, and swallowed the remainder. She was immediately raised from the charpoy, and with the support of two of the by-standers, was enabled to stagger about. The conflict between the remedy and the disease at this time was very distressing. When she was enabled to articulate, she complained that a fire was consuming her stomach, and begged for water, by which she was somewhat relieved. I then gave her another pounded leaf to make up for a small quantity which escaped from her mouth when lying on the charpoy. From this she experienced great relief, and a natural heat began to spread over the surface of the body. She still complained of pain in the poisoned limb, which was well rubbed with the pounded leaf, and after keeping her in motion for an hour and a half, she returned home on foot perfectly restored. The case had been so desperate, that I thought it advisable to caution the woman against falling asleep for some hours. Her husband, however, went beyond these instructions, for he not only kept her awake the whole of the night, but at one o'clock in the morning administered two additional leaves, which, unknown to me, he had taken away; not that the woman was relapsed, but in order to make sure of the recovery. This caused an extreme sensation of giddiness, as well it might, from its stimulating effects. On hearing of this early in the morning, I sent her an ounce of castor-oil, and in the course of three hours she was quite well."

Another very curious and interesting case we quote in Mr. Lowther's own words.—"On the 1st instant an infant was brought to me in a comatose state, under the following circumstances. Its mother, whilst grinding meal, was bitten by a snake just behind the region of the heart. She informed the neighbours of the accident, but they discredited her story, and told her it must have been a rat. It does not appear whether the snake was seen or not, but in a short time the poor woman complained of sickness, and as her child became fretful, it was put to the breast, and must clearly have been affected by the poison then in circulation. When it was brought to me it had the appearance of being overdosed with opium. The skin was warm, but there was nothing beyond it to indicate animation. The mother had died under the fruitless attempts of the charmer, about an hour before the child was brought to me. I caused its forehead to be well rubbed with the pounded leaf, and applied some of it to its nostrils. The mouth was opened with difficulty, and about a quarter of a small leaf bruised with water gradually poured down its throat. In the course of five minutes it groaned, and this was followed by a violent scream and eventual liveliness." In taking into consideration the very remarkable facts detailed above, it should be mentioned that Mr. Lowther was an old resident in India, having come to this country in 1808, and from his long residence must have been perfectly acquainted with the tricks of the natives, and not likely to be imposed upon in any way whatever, even if imposition could have been attempted in such a case. (Munro.) The properties of this plant appear to be well worthy of further investigation.

Aristolochia bracteata.
Keera-mar (Hind.)
Addin-nappalee (Tam.)

Of the next species, *Aristolochia bracteata* of Retz., a brief notice only is required, it having already been considered amongst the anthelmintics.(1) Its common Eastern names are *Cattrabungha*, (San.) *Keera-mar*, (Hind.) *Addin nappálee*, (Tam.) *Garadu-guraka*, (Tel. and Can.) Dr. Kirkpatrick(2) states that in Mysore it is given in conjunction with Nux Vomica bark, and one other ingredient, in snake-bites; and we learn from Harris(3) that in Abyssinia, where it is known by the name of *Gerbad*, it is employed as a

(1) Indian Ann. of Med. Sci. vi., p. 394.
(2) Cat. of Mysore Drugs, No. 355.
(3) Highlands of Æthiopia, vol. ii., p. 400.

remedy in poisoned wounds. Hence we may conclude that it possesses in some degree the alleged antidotal powers of its congeners. We may also notice a circumstance connected with this plant, which tends to confirm the extraordinary effects stated above by Mr. Lowther to have followed the external application of *A. Indica;* it is this, Dr. Kirkpatrick(1) states that the plant applied warm to the abdomen (as a poultice) in children, acts as a laxative and anthelmintic, and the same circumstance is mentioned likwise by Ainslie(2).

Bragantia Wallichii.
Alpam (Mal.)

The third and last plant of this order which we shall notice is the *Bragantia Wallichii*, of R. Brown, Wight's Icones, (ii, tab. 520) the *Apamia siliquosa* of Lamarck, the *Alpam* of Rheede, (Hort. Mal. vi., p. 51, tab. 28.) This shrub appears to be confined almost entirely to the Western Coast, where it is known by the Malayalum names of *Alpam, Alpama*, and *Pahiora*. By the Portuguese settlers it is named *Fruita Tirilha*. According to the statement of Rheede, the juice of the leaves, with *Acorus calamus*, is employed as an antidote to snake-bites. The root also triturated with lime juice, is considered of especial value, used as an errhine, in the bite of the Cobra de Capello. The root is also taken internally in milk, and applied locally in the form of cataplasm.(3) Father Bartolomeo(4) remarks the alpam is the only plant which he can with certainty call an antidote to poison, and he quotes a Malabar proverb, to the effect that "as soon as alpam enters the body the poison leaves it." He states that the pounded root is administered in warm water.

Euphorbiaceous plants, in common with the Aristolochias, have for many centuries enjoyed considerable repute as antidotes to snake-bites. Thus we find Pliny(5) stating that the milky juice of the Euphorbia *(E. officinalis)* is an excellent remedy for the stings of serpents, in whatever part of the body the wound may have been inflicted; the practice, he adds, is to make an incision in the crown of the

(1) Op. cit. (2) Mat. Ind. ii, p. 5. Foot note.

(3) The following are Rheede's own words. "Foliorum succus cum calamo aromatico contra serpentium exhibetur venenum. Speciatim vero reguli serpentis (cobra capella) veneno resistit radix ex limonis contrita succo, in nodulum ligata naribusque pro errhino immissa. Ejusdem junioris colubri infringitur virus eadem radice cum vaccino lacte propinata: quem infinem tiam cataplasmata e calamo aromatico atque hac radice confecta adhibentur."

(4) Voyage to the East Indies, &c. p. 416. (5) Hist. Nat. Lib. xxv., cap. 38.

head and there introduce the medicament. The practice is also noticed by Dioscorides.(1) Considering the powerfully acrid character of many plants belonging to this order, we are not surprised at finding them still employed in various parts of the world, in a class of cases evidently requiring active treatment; thus in Brazil, they resort to *E. capitata*, *Croton antisyphilitica;* in the West Indies to *Euphorbia hirta;* in Algeria to *E. guyoniana*, &c.

Euphorbia ligularia.
Manasá sij (Beng.)

Of all the numerous Euphorbiaceous plants of India, only one appears to enjoy any repute as an antidote to snake-bites, and this is the *Euphorbia ligularia* of Roxburgh, (Flor. Ind. ii., p. 466,) the *Ligularia* of Rumphius, (Herb. Amb. iv., tab. 40,) which extends from Bengal to Burmah and the Moluccas. Its native names are *Manasá sij*, (Beng.) *Sha-zoung*, (Burm.) *Daun-susu-sudu*, (Malay.) The root, beaten up with black pepper, is employed by the natives for the cure of snake-bites, both internally and externally. This plant is sacred to Manasá, the Snake goddess, and in July and August, on Tuesdays and Thursdays, the natives approach the tree with offerings of rice, milk, and sugar, praying to be delivered from snake-bites; however, they employ a surer means, by mixing the root with black pepper, as a remedy in bites. There is a festival, *Manasa panchami*, in honor of Manasá, who, while the gods were sleeping, is stated to have sat in the shape of a snake on a bunch of *snuhi*, to preserve mankind from the venom of snakes. The native doctors purify arsenic, by making a hole in the green trunk of the *Manasá*, filling it up with solid arsenic, and after being covered with the bark of the same plant, the whole is exposed to a good fire, until the external parts of the trunk are completely charred, when the arsenic is taken out, and becomes fit for use. We are not aware of any trials by Europeans with this plant, but after the experience of Dr. Tisseire with *E. guyoniana*, it may be worthy of attention to the Medical practitioner in the East.(2)

(1) Mat. Med. Lib. iii., cap. 86.

(2) In order to facilitate any further experiments with the Indigenous Indian species, a sketch of the treatment adopted by Dr. Tisseire is here appended, condensed from "Annuaire de Therapeutique," for 1859, p. 263. When the fresh plant is available, he administered the fresh milky juice in water, in doses of eight drops at first, or if serious symptoms manifested themselves, the dose was increased to ten drops. An hour afterwards a second dose of five drops, and two or three hours after a third dose of five drops. In the intervals

The next Natural Order which we shall consider, Apocyaneæ, possesses much of the energy of the Euphorbiaceæ, and furnishes us with several reputed antidotes for snake-bites, some of which appear to be worthy of attention.

Ophioxylon serpentinum.
Chota-chand (Hind.)
Chivan-amelpodi (Tam.)

The first which we shall consider is the *Ophioxylon serpentinum* of Linnæus, (Sp. Pl. 1478,) the *O. trifoliatum* of Gærtner, (De. Fruct. ii., tab. 129,) the *Radix mustelæ* of Rumphius, (Herb. Amb. vii., p. 29, tab. 16,) the *Tsjovanna amelpodi* of Rheede, (vi., p. 81. tab. 47.) It is well figured by Wight, (Icones iii, tab. 849.) It is an elegant twining shrub, very frequent in moist woods, and extending from Bengal to the Peninsula of India, Ceylon, Java, the Moluccas, and Cochin China. Its Eastern names are *Chandraca, Chandrapushpa,* (Sans.) *Chota, Chand, Moonlet,* (Hind.) *Chandra, Ch'hota-chand,* (Beng.) *Chivan-amelpodi,* (Tam.) *Patala gandhi,* (Tel.) *Tsjovanna-amelpodi,* (Mal.) *Palipandak,* (Javan.) *Godagandu eka-werya,* (Cing.) The older writers are unanimous in their praise of the root of this plant as an antidote in snake-bites. Burman, (Thes. Zeylan. p. 141,) Rheede, (Op. cit. p. 82,) Rumphius, (Op. cit. p. 31,) all speak of the esteem in which it was held in their day, by the natives of Ceylon, Malabar, and Amboyna, respectively. Coming to later times, Roxburgh (Flor. Ind. ii., p. 331,) states that the Telegu physicians employed the root as a remedy for snake-bites in two ways; first, inwardly, and secondly, by introducing the juice into the eye, doubtless for the purpose of rousing the patient's energies. Horsefield,(1) who does not speak from his own observation of the use of this plant as an antidote to snake-bites, remarks that the root yields a strong bitter infusion, and that its properties seem to corroborate the testimony of the most celebrated writers on Indian plants, and indicate considerable activity. He

he prescribed a stimulant sudorific draught, with the addition of a small portion of the acetate of ammonia. If bad symptoms continued, he prescribed two more doses of five drops of the juice, at intervals of three and a half or four hours. It is said to be dangerous to push the remedy beyond this. If the fresh plant be not available, he advises a decoction of the dried plant, (a small handful or about three ounces to two pints of water, boiled for ten minutes,) in doses of half a glass or a full glass at the intervals indicated above for the administration of the juice. Debilitated subjects or children should take only one half or one third of these doses, according to age and circumstances. The snake in whose bites this treatment was adopted is designated "La Vipére bicorne de l' Algére." Dr. Tissiere found ammonia the best local application.

(1) Med. Plants of Java in Asiatic Journ. vol. viii, p. 148.

adds that the Javanese employed it as an anthelmintic. In no work to which I have access can I find the details of any case treated by this remedy. It is often confounded with another plant, the *Ophiorrhiza mungos*, which, though belonging to another natural family, may conveniently be considered in this place.

Ophiorrhiza mungos. *Mendi* (Cing.)

The *Ophiorrhiza mungos* of Linnæus (Flor. Zeylan. p. 402) is a small perennial plant of the Natural Order Rubiaceæ, inhabiting Ceylon, Java, and some parts of India, into which it has probably been introduced. Its Eastern names are *Mendi*, *Nagahwalhi*, (Cing.) and *Kajo Ellar*, (Javan.) It has obtained its specific name from its being supposed to be the plant which supplies the mungoose with its antidote to the poison of the cobra and other venemous snakes. It is common in Malabar in the rainy season, and is frequently met with about Courtallum. The most contradictory accounts of its properties are met with; thus Kæmpfer,(1) who first brought it to notice, states that the root, on account of its extreme bitterness, is called by the Malays *Hampaddu tánapie*, i. e. *Fel terræ;* and Wight states that it is intensely bitter, more so than gentian; whereas, on the other hand, Horsefield(2) who speaks of it as met with in Java, states that it is almost insipid, and that its sensible properties indicate little activity. Again, Ainslie speaks of it as "a tree," on which Wight remarks that if he is correct in calling it a tree, it cannot be the plant known to botanists as *O. mungos*, as that is a small shrub, or rather an annual with a perennial stem, which dies down after ripening its seeds. By Kæmpfer and others it is asserted to possess valuable, indeed extraordinary, powers in the bites of snakes and other venemous reptiles; but Roxburgh remarks that though from his own knowledge he can say nothing of its virtues, he is rather inclined to look upon the whole as a fiction. Amidst such conflicting statements it is difficult, in the absence of any specific evidences of its antidotal power, to form an opinion as to its efficacy.

As bearing on the point whether this is or is not the plant from which the mungoose derives its defence in its battles with the cobra, the following extract from Mr. Benett's work on Ceylon may prove interesting. He placed a tame

(1) Amæn. Exot. p. 574, Seq. (2) Asiat. Journ. vii, p. 14

mungoose in a room with a cobra, the latter expanded its hood, and displayed the greatest excitement, whilst the mungoose on its part exhibited a great sense of fear, for it ran about the room, putting its nose under the doors, &c., as if eager to escape. The antagonists were then removed into the garden, the mungoose immediately retreated to the hedge, which was covered with wild plants, and returning in about five minutes, re-entered the area. It showed no fear then, but made several detours, each time reducing the circle and nearing the snake, which was also on the *qui-vive*, watching every movement of the enemy. The mungoose suddenly crouched with its nose close to the ground, and having waited for its opportunity, sprung forward in a moment and fastened its teeth in the back of the cobra's neck. The snake twisted itself in every direction, vainly endeavouring to envelope the mungoose in its folds, and lashing its tail against the ground, but all to no purpose; the little animal maintained its hold till the snake became completely exhausted, when giving a farewell shake, it relinquished the snake, but only as life departed. This occupied nearly an hour, the mungoose was neither bitten, nor in any way injured; but upon quitting the snake, it again repaired to the hedge whither it was followed, to discover, if possible, what plant it resorted to; it is to be regretted, however, that the point was not settled, some asserting that it was the *Ophiorrhiza mungos*, (*Mendi*, Cing.) others the *Ophioxylon serpentinum*, others a species of *Mimosa sensitiva*, and others most confidently the root and leaves of *Eupatorium ayapana*. The subject is one of great interest, and demands further investigation.

Till within a very late period the plants of the genus strychnos were included in the Natural Order Apocyanaceæ, and though now referred to a separate order, Loganiaceæ, the plants of the two orders bear a close botanical affinity, hence we will proceed to consider them in this place.

Lignum colubrinum.

Plants of the strychnos family demand much attention, as furnishing the greater portion of *Lignum colubrinum*, which was formerly officinal in the British and Continental pharmacopœias, where it ranked high amongst the Alexipharmics. The first distinct notice of it I have met with is in Garcia ab Horto's Historia Aromatorum, &c.; Ed. 1579, p. 161. He mentions three kinds, the produce, according to him, of Ceylon. In the same

work it is said to be a virulent and dangerous cathartic; the dose of it is placed by Herman and Geoffroy at half an ounce in infusion, but Alston[1] considers that half a drachm of it would probably be too much in substance. One of these was most likely the root of *Ophioxylon serpentinum* already considered, the other two are probably the produce of the two following species of strychnos.

Strychnos colubrina.
Koochila luta (Beng.)
Naga musidi (Tel.)

1. *Strychnos colubrina* of Linnæus, (Sp. Pl. 271,) the *Arbor ligni colubrini* of Rumphius, (Herb. Amb. ii, tab. 37,) and the *Modira caniram* of Rheede, (Hort. Mal. viii, p. 47, tab. 24.) A good figure of it will be found in Wight's Icones, (Vol. ii, tab. 434.) It is a climbing shrub inhabiting Coromandel, the South Concans, Malabar, and other parts of the Peninsula of India; also Java, the Moluccas, and Hong-Kong. Its Eastern names are *Koochila-luta*, (Beng.) *Naga-musidi*, (Tel.) *Maha-penala*, (Cing.) *Widoroo-pait*, *Vidoo-pait*, (Javan). "The wood of this tree," remarks Lindley[2] "is the most esteemed of all the *Ligna colubrina* by the natives of India, and fetches so high a price among them as rarely to find its way to Europe, it is the true *Pao de Cobra* of the Portuguese. The wood of the root is considered an infallible remedy for the bite of the Naga or Cobra de Capello, as well as for that of every other venemous snake. It is applied externally, and at the same time given internally." Roxburgh[3] states that the Telegu physicians regard it as an infallible remedy for the bite of the cobra, as well as for that of every other venemous snake. It is likewise used by them in intermittent fevers.

Strychnos ligustrina. (Blume.)

2. *Strychnos ligustrina* of Blume (Rumphia i, p. 168) will require a very brief notice, not being found in India, its habitat being confined to the islands of the Malayan Archipelago, where it is known by the name of *Caju-ular*, *Caju-nassi*, and *Caju-bidara-lant*. This, according to Lindley,[4] yields the real ancient *Lignum colubrinum* of Timor, once held in the highest esteem, not only in snake-bites, but as a remedy in paralysis, cachexia, &c.

(1) Mat. Med. ii., p. 41.
(2) Flora. Medica p. 529.
(3) Flora. Indica ii., p. 205.
(4) Flor. Med. p. 531.

Strychnos nux vomica.
Koochla, Kagphill (Hind.)
Yetti (Tam.)

Amongst other plants of this Natural Order, indigenous in India, is the *Strychnos nux vomica* of Linnæus, (Sp. Pl. 58,) the *Nux vomica officinarum* of Burman (Thes. Zeylan. p. 171,) and other old writers, the *Caniram* of Rheede, (Hort. Mal. vol. i, p. 67, tab. 37,) and the *Kagphill* or *Kagtoondie* of the Taleef Shereef. (p. 113, No. 675.) It is a middle sized tree, common throughout India, Burmah, Ceylon, &c., and is known by the names of *Koochla, Kagphill,* (Hind.) *Koochila,* (Beng.) *Yetti,* (Tam.) *Musidi, Mustighenga,* (Tel.) *Kha-boung,* (Burm.) *Tome-kah,* (Siam.) *Godha kaduru, Divie kaduru* (Cing.) These names are equally applied to the tree and to its seeds, the Officinal nux vomica. All parts of the plant, except the pulp and flowers, are exceedingly bitter, especially the wood of the root, and the inner layers of the bark. It is not intended in this place to enter into the physical effects and general uses of this potent drug, as these will be considered more properly in the class of Nervines, but simply to regard it as an antidote for snake-bites. Speaking of its use in this character, Burman remarks "Optimum est Alexipharmacum ad omnes venenosis affectus, adversus morsus venenosarum bestiarum serpentum," &c. (Op. cit. p. 172.) In this statement he is apparently alluding to the wood, of which Wight(1) remarks that it, especially the wood of the root, is very bitter, and is used by the natives in the cure of intermittent fevers, and the bites of venemous snakes. Ainslie(2) states that on the Malabar Coast, the root is amongst the remedies used in snakes-bites, and he adds that it would appear that the Arabians employ it also in the same class of cases. Roxburgh(3) also speaks of the Telugu physicians using the root in the bites of venemous snakes, when *Naga musadi* or *S. colubrina* is not to be had. It is not impossible that it formed one of the kinds of *Lignum colubrinum* of old writers alluded to above.

To the seeds, the well known Nux vomica, prophylactic or preventitive properties are assigned; thus Rheede(4) states that the seeds, taken to the extent of one or two daily, for a period of two years, enables the body to resist the poisonous effects of the cobra. A similar belief with regard

1.) Illustrations of Ind. Bot. ii., p. 171.
(2.) Mat. Ind. i., p. 319.
(3.) Flor. Ind. ii., p. 263.
(4.) Op. cit. p. 68.

to hydrophobia prevails very generally in the Northern parts of India. Dr. T. E. Baker[1] states that for this purpose it enjoys a high reputation amongst the people of Bengal. When a person is bitten by a dog supposed to be mad, they give one-eighth of a nut, morning and evening, for seventy-one days, and the nut roasted and mixed with linseed oil is applied to the bitten parts. It is also used when the disease developes itself, sometimes it is said with success, a belief in its efficacy appears to be general.

In Guzerat and some other parts of India, this nut is well known to be taken habitually, but its use according to Dr. Gibson[2] is confined to desperate debauchees, by whom it is had recourse to as a bracer up of decayed corporeal faculties. It is taken to the extent of even two seeds per day; these being softened and afterwards fried in ghee or butter. On this subject we shall remark further when speaking of Nervines.

Another plant of this order which requires brief notice, is *Strychnos potatorum* of Linnæus, (Sp. Pl. Suppl. p. 148,) (Wight's Illust. ii, p. 155,) the *Strychnos tettan cotta* of Retz, the *Neyrmellie* of the Taleef Shereef. (p. 166, No. 987.) It is a small tree, inhabiting the forests and mountains of the Peninsula of India, and is commonly known by the names of *Keohkepel*, (Pers.) *Nirmulee*, *Nir-mal-i*, (Hind. and Beng.) *Téttan-kotei*, (Tam.) *Chilla*, *Indupu chettu*, (Tel.) *Chittu*, *Chilla*, (Canar.) In the Taleef Shereef (Op. cit.) it is stated that the seed applied to the bite of a snake, will remove the effects of the poison.

Strychnos potatorum.
Nirmulee (Hind.)
Téttan-kotei (Tam.)

The seeds, of the size of a small marble, nearly round, and of a pale brown or dirty yellow colour, are known to English residents by the name of *clearing nut*, from the fact of their being commonly employed in clearing muddy water, for which purpose they prove most efficient. The mode of employing them is very simple, consisting only of rubbing the inside of the vessel with the cut seed before the water is poured in, and the muddiest water is thus speedily rendered clear and wholesome. O'Shaughnessy (Beng. Disp. p. 443) is of opinion that this property probably depends upon the astringency of the fruit; but Dr. Pereira (Pharm. Journ. 1850, ix, p. 478) has shewn that it depends

(1) Trans. Med. and Phys. Soc. of Calcutta, vol. i., p. 140.
(2) Hooker's Journ. of Bot. vol. v., p. 91.

upon the presence of albumen and casein, which act as fining agents for wine and beer; the seeds, unlike those of most other species of strychnos, are destitute of any poisonous quality.*

Strychnos Ignatii.
Papeitha (Hind.)

We cannot omit in this place a few brief remarks on *Strychnos Ignatii* of Bergius, the *Ignatia amara* of Linnæus, a tree of the Philippine Islands and Cochin China; but whose seeds, well known as *St. Ignatius' Bean*, form an article of the Indian Materia Medica, being admitted into the Taleef Shereef (p. 29, No. 125) under the Hindustani name of *Papeitha*. Amongst many other virtues, real or imaginary, it is said "in bites of snakes or the stings of any noxious reptile or insect, it proves highly beneficial." Taking into account the powerful nature of the remedy, and the character of other plants of the same order, the statement is not improbable.

(To be continued.)

* From a careful series of experiments made some years since on the clearing properties of the *Strychnos potatorum*, we are enabled to affirm Dr. Pereira's view as the correct one. The nut has no astringency whatever, and is composed almost entirely of dense vegetable albumen. This, when rubbed up with water, forms a fine emulsion which entangles mechanical impurities, and soon clears the muddiest fluid.—Ed. *M. Q. J.*

PART II.

REVIEWS AND NOTICES OF BOOKS.

1.—*Memoirs on Diphtheria, from the writings of Bretonneau, Guersant, Trousseau, Bouchut, Empis and Daviot. Selected and translated by* Robert Hunter Semple—London: New Sydenham Society, 1859, 8vo., pp. 382. *Appendix, Bibliographical,* by John Chatto, Librarian to the Royal College of Surgeons, pp. 21.

2.—*Diphtheria.* By Edward Headlam Greenhow, M.D., Fellow of the Royal College of Physicians; Physician to the Western Dispensary, and Lecturer on Public Health at St. Thomas' Hospital—London: J. W. Parker and Son. 1860, 8vo., pp. 274.

3.—*Diphtheria, its Symptoms and Treatment.* By William Jenner, M.D., Special Professor of Clinical Medicine, University College; Physician to University College Hospital; the Hospital for Sick Children, &c.—London: Walton and Maberly, 1861, 12mo., pp. 107.

(First Notice.)

One of the many disadvantages under which our editorial labours are conducted is fully illustrated by the *dates* of the three volumes, the names of which are recorded above. The supply of books which reaches us is uncertain both as to time of arrival and as to the subjects treated in them, and a delay not unfrequently is necessitated in the reviewing of one book by our desire to contrast or compare it with other works on the same subject. Hence has arisen our long omission to notice the valuable collection of *Memoirs on Diphtheria,* presented (as Vol. 3) to the subscribers of the New Sydenham Society in 1859.

The Nature and Treatment of Diphtheria.

Our delay has been, however, justified by the hitherto non-appearance of diphtheria in an epidemic form in this country, and without pausing to enquire whence this has arisen, we may congratulate ourselves that no urgent necessity has hitherto existed for our prominently noticing the works

from which we now proceed to deduce certain facts for the information of our readers.

We can only on the present occasion refer to two main topics contained in all the authorities from whom we quote, and we purpose at a future time returning to the subject, which we hope then to consider more fully in detail as evidencing some of the laws of Epidemics.

Writing without practical experience of the disease, we believe that we shall best consult the wants of our readers if we place before them, as succinctly as their importance will permit, a brief outline of its nature and treatment. But we cannot do so without expressing our strong hope that should it be witnessed in their own practice in India, we may be, speedily and fully, placed in possession of the results of their experience. These will be valuable as indicating any changes which may be produced by climacteric influence, which is, as we know, so likely to alter at once the manifest appearances and constitutional symptoms of all epidemic diseases.

We trust that the following descriptions as given by our authors may facilitate the ready recognition of cases of diphtheria if occurring in India. And here we may remark that very slight varieties of habit and race seem to augment or diminish liability to the disease. Thus in the "*Boulogne*" epidemic of sore throat which lasted from 1855 to 1857, we find, according to Dr. Greenhow, that "it attacked especially the English portion of the population." Again, we find the same author stating that the extension of the exudation of false membrane into the larynx was less frequently witnessed in France during the epidemic of 1856, than in those described by M. Bretonneau in former years. Diphtheria sometimes coincides with, and sometimes follows, rubeola or scarlatina of an epidemic type, and, on the other hand, sometimes appears independent of any apparent connection with these affections. Similarly, we find that varying degrees of mortality are observed as the result of it, and some cases are followed by amaurosis or paralysis, while others are not productive of any analagous sequelæ. All these considerations should render us desirous of becoming intimately acquainted with such features of the disease as are, more or less, invariable, and upon which alone we can safely rely for its speedy diagnosis and appropriate treatment.

On these points we find ample information in the volumes

before us, and each of these possesses a large amount of practical experience in the disease which is especially valuable to us as verifying the views of the author.

M. Bretonneau (p. 4) refers to the allusion of Ghisi in 1740, to the pseudo-membranous exudation of Diphtherite; and Dr. Greenhow goes back even further and proves the existence of the disease in the 16th, 17th and 18th centuries. While if further proof of the antiquity of the disease be needed, it may be found in the works of "Aretæus—the Cappadocian" who, according to the learned editor of his works, (as published (1856) for the *old* Sydenham Society) was born A.D. 131, and died about 60 years afterwards.

The earliest account of diphtheria as occurring in England is contained in the works of Dr. Fothergill, from whom Dr. Greenhow quotes. Some further passages we reproduce in their entirety here, as we find them in our own copy of Dr. Fothergill's works. The one alluded to by our author is dated 1769, our copy is some 12 years later, but exactly coincides. In submitting these passages from, we believe, the earliest account given by an English writer, we do so at some length as the details are carefully written out, and also because more extended experience has corrected some errors into which Dr. Fothergill fell. We may add that he styles the disease the *Putrid sore throat.*

In the "*Complete collection of the Medical and Philosophical Works of John Fothergill, M.D., &c., with an account of his Life and occasional Notes, by John Elliot, M.D.,—London*, 1781, pp. 199, et seq: the following account of the disease is given. We have omitted from it certain passages non-essential to our present purpose.

"I am informed that in the winter of 1746, so many children died at Bromley near Bow, in Middlesex, of a disease that seemed to yield to no remedies or applications, that several of the inhabitants were greatly alarmed by it; some losing the greater part of their children, after a few days' indisposition. * * *

"Though this disease has now been amongst us several years, and has consequently survived the different seasons, and all the variety of weather to which we are exposed, yet it seems to show itself most frequently in autumn and the beginning of winter; at least I have met with many more cases from September to December inclusive, than in all the other months together. * * *

"In this country, children and young people are more exposed to it than adults: a greater number of girls have it than boys; more women than men; and the infirm of either sex are more liable to

have the disease, and to suffer from it, than the healthy and vigorous: I have seen but few adults of this constitution affected by it, and not one who died of it.

"When it breaks out in a family, all the children are commonly affected with it, if the healthy are not kept apart from the sick; and such adults as are frequently with them, and receive their breath near at hand, seldom escape some degree of the same disease. * *

"This disease frequently seizes the patient in the forepart of the day; as night approaches, the heat and restlessness increase, and continue till towards morning; when, after a short disturbed slumber (the only repose they often have during several nights,) a sweat breaks out, which mitigates the heat and restlessness, and gives the disease sometimes the appearance of an intermittent.

"If the mouth and throat be examined soon after the first attack, the *uvula* and *tonsils* appear swelled; and these parts, together with the velum pendulum palati, the cheeks on each side near the entrance into the fauces, and as much of them, and the pharynx behind, as can be seen, appear of a florid color. This color is commonly most observable on the posterior edge of the palate, in the angles above the tonsils, and upon the tonsils themselves. Instead of this redness a broad spot or patch, of an irregular figure and of a pale white colour, is sometimes to be seen surrounded with a florid red; which whiteness commonly appears like that of the gums immediately after having been pressed with the finger, or as if matter ready to be discharged was concealed underneath.

"Generally on the second day of the disease, the face, neck, breast, and hands, to the finger ends, are become of a deep erysipelatous color, with a sensible tumefaction; the fingers are frequently tinged in so remarkable a manner, that from seeing them only, it has not been difficult to guess at the disease.

"A great number of small pimples of a color distinguishably more intense than that which surrounds them, appear on the arms, and other parts. They are larger, and more prominent in those subjects, and in those parts of the same subject, where the redness is least intense; which is generally on the arms, the breast, and lower extremities.

"As the skin acquires this color, the sickness commonly goes off, the vomiting and purging cease of themselves, and rarely continue after the first day.

"The appearance in the *fauces* continues to be the same, except that the white places become more ash-coloured; and it is now discoverable, that what at first might have been taken for the superficial covering of a suppurated tumour, is really a slough, concealing an ulcer of the same dimensions." * * * *

With the foregoing passage we should, however, contrast the following from the same author (p. 219) as regards two

cases which proved fatal (and which may therefore be presumed to have had the disease in a severe form), but yet he adds, "No marks of sloughs in the throat appeared in either of these cases."

From this and more extended recent experience we are justified in inferring that ulceration is not a *necessary* process in the disease. Dr. Jenner speaks of its anatomical character as being "*spreading inflammation of the pharynx attended by the exudation of lymph.*" (p. 1) and again (pp. 34) the same author says :—

"It may be that the mucous membrane covering one of the tonsils is the primary seat of the exudation, or it may be that the arches of the palate, the posterior surface of the soft palate, the uvula, the nares, or the mucous membrane of the pharynx itself, is the starting point of the local lesion. At first there is redness and some swelling of the parts, and perhaps a little excess of mucus on them; then a white or gray patch, due to the presence of a layer of lymph, is seen on the reddened surface. Usually the redness involves the whole mucous membrane within reach of the eye, posterior to, and inclusive of, the anterior arches of the palate, before any lymph is exuded. Thus starting from one or many centres, the exudation spreads anteriorly on to the soft palate, upwards to the posterior nares and downwards to the upper surface of the epiglottis, and if not arrested by nature or by art, it descends into the larynx, the trachea, and the bronchii. I have seen, though not during the present epidemic, the lymph extend into the œsophagus and stomach."

According to the account of Fothergill and the explanation of Dr. Jenner, inflammation with exudation of lymph constitutes the specific local affection, and in this view Bretonneau agrees, for Dr. Greenhow remarks that to this author "no "inflammation unattended with exudation is *diphtherite.*" Dr. Greenhow, on the other hand, would prefer to extend the term and to include under it many milder forms of disease—the true character of which would seem to be masked by individual peculiarities, or by the non-development of the disease in its fullest form, from whatever cause arising. And in thus considering diphtheria he institutes an analogy between it and cholera, which, as we know, is often modified into diarrhœa and lacks "the more striking features usually known to be associated with cholera."

Under this view he submits a description rather than a definition of the disease, and this is intended to include "every variety of the disease from that of mild epidemic sore throat to the severest form of malignant diphtheria."

He says that:—

"Comparatively rare as a sporadic disease, it more frequently prevails as an epidemic, in which form it often exists contemporaneously over considerable tracts of country, or it may occur in smaller groups limited to particular hamlets, or particular houses. Sometimes it has prevailed so extensively that distant countries, including portions both of the old and new world, have been simultaneously or successively visited by it.

"Diphtheria is sometimes preceded, and usually accompanied, by fever, which, in certain epidemics and in severe cases, is only transient, speedily giving place to depression.

"There is often a stiffness of the neck at the commencement of an attack, and usually more or less swelling and tenderness of the glands at the angles of the lower jaw. The tonsils are commonly swollen, and, together with the immediately contiguous parts of the mucous surface, more or less inflamed. Sometimes the swelling and inflammation subside without further local mischief; at others, the inflamed surface presents, from an early stage of the disease, whitish specks, or patches, or a continuous covering of a membraniform aspect, which may appear as a mere thin, almost transparent pellicle, but usually soon becomes opaque, and in some cases assumes the appearance of wet parchment or chamois leather. This membranous concretion varies in colour from being slightly opaque to white, ash colour, buff or brownish, and in rarer instances, to a blackish tint.

"This false membrane is a true exudation which has coagulated upon the mucous surface, from which it may often be readily separated, leaving the subjacent membrane mostly unbroken or merely excoriated, usually reddened, vascular, tender, and dotted with small bloody specks or points, but sometimes superficially ulcerated, and more rarely in a sloughing condition. When the false membrane has been artificially removed, it is apt to be renewed; and when not meddled with, to become thicker by continued exudation from the mucous surface.

"The severity of the disease is commonly in proportion to the continuity and density of the exudation; but cases sometimes occur in which the membranous exudation is inconsiderable, and yet the general symptoms are of a very alarming kind.

"If the patches are small and remain distinct, the case ordinarily runs a favourable course; if they rapidly spread and coalesce, if the membrane becomes thick, and especially if it assumes a brownish or blackish colour, danger is imminent.

"In proportion as the membrane increases in thickness and density, does its attachment to the subjacent surface generally become firmer. The surface of the mucous membrane around the exudation is red and vascular, and so tender that in severe cases it bleeds on the slightest touch.

"The throat is in general the primary seat of the disease, but

the inflammation is apt to spread along continuous mucous surfaces, and thus to extend upwards into the nares and to the conjunctivæ; down the pharynx into the œsophagus; through the glottis into the larynx, trachea, and downwards into the bronchial tubes; or forwards on to the buccal mucous membrane, the gums, and lips. Wounds and excoriations of the skin and the mucous membrane of the nymphæ and vagina when tender or irritated, especially in persons already suffering from diphtheria of the throat, are during an epidemic, liable to undergo the same process of exudation, which, coagulating, forms a false membrane analagous to that on the tonsils and throat.

"Albuminuria, commencing early in the disease, usually within a few hours, and gradually disappearing with the local affection, sometimes, but by no means invariably, accompanies diphtheria.

"If the urine be much loaded with albumen, the complication is a serious one, but cases have done well in which a considerable cloud of albumen was deposited from the urine by the proper tests, and very severe and even fatal cases of diphtheria have been unattended by albuminuria.

"After a time the false membrane is thrown off, either entire, so as to represent a mould of the parts it covered, or which is more usual comes away in shreds or flakes intermingled with mucus.

"Sometimes it undergoes decomposition prior to separation, giving rise to a very offensive smell. When the membraniform exudation has come away spontaneously, it is sometimes repeatedly renewed, each successive false membrane becoming less and less dense, having less and less of the character of exudation, and more and more that of mucous secretion, until at length the affected surface is merely covered with a thick mucus, which gradually disappears as the mucous membrane recovers its healthy condition. In other cases the exudation is not renewed when it has once been thrown off, but the subjacent membrane is observed to be either redder or paler than natural, has a rough, ragged appearance, or is depressed below the adjacent surface on the parts where dense, false membrane has existed.

"Occasionally sloughing takes place beneath the exudation, or even, more deeply, as in the centre of a tonsil, and may implicate the tonsils uvula, and soft palate. More rarely the tonsils suppurate.

"Hæmorrhage from the nose and throat independently of the co-existence of purpura, often occurs in the course of diphtheria, and is sometimes very profuse.

"The local affection may pass into a chronic form, in which relapses, or exacerbations are readily produced by vicissitudes of weather or by exposure to damp or cold.

"Even perfect recovery from an attack affords no immunity from the disease in future.

"A peculiar character of the voice, resembling that produced by

affections of the throat in secondary syphilis, is a common result of diphtheria, and often continues for many weeks after recovery.

"The power of swallowing is sometimes so impaired that there has been difficulty in sustaining life during convalescence; and liquids especially are apt, even after a comparatively slight attack of the disease, to be regurgitated through the nostrils. Extreme anemia, impairment of vision, a peculiar form of paraplegia, weakness of the hands and arms, numbness, tenderness of the limbs, tingling, wandering pains, and more rarely, nervous sequelæ of a hemiplegic character, are in the order here written, ulterior consequences of diphtheria. Gastrodynia, and sometimes dysenteric diarrhœa, occasionally follow diphtheria. Pain of the ear, deafness and abscess, are occasional but rare results of the disease."

We have before spoken of ulceration as not being a necessary ingredient in the disease, but its occasional occurrence is mentioned by all authors. Dr. Jenner also notices that the inflammatory process penetrates deeper than the mere mucous membrane, and that increased thickening and toughness are found in the subjacent structures.

The same author thus classifies the different varieties of the disease. 1st, *The mild form:*—where the general symptomps and local lesions are trifling, and no sequelæ follow. 2nd, *The inflammatory form:*—in this severe cynanche pharyngea precedes the exudation of lymph. Here there is redness and swelling of the mucous membrane, sometimes this is vivid, sometimes dusky: swelling and serous effusion of the uvula, dysphagia, and more or less febrile excitement are present and general debility is witnessed. From 12 to 48 hours afterwards lymph is effused, and when death follows it results from extension of this inflammation to the larynx trachea, &c. 3rd, *The insidious form:*—in this variety the symptoms detailed above are so ill-developed that when the laryngeal symptoms supervene, they may be confounded with those of croup. 4th, *The nasal form:*—in this the first clearly appreciable symptom is a sanious discharge from the nostrils, followed by glandular tenderness in the neck, swelling and redness of the back part of the mouth and pharynx: this variety of the disease may subside in this stage or go on to the laryngeal complication, and so prove fatal; or, its spreading to other members of the family may prove its real nature. 5th, *The primary laryngeal form:*—in these cases the disease becomes developed in the larynx and subsequently extends to the pharynx. In all the foregoing, death is occasioned by the impediment to air entering the lungs, but in the

next form it results from the constitutional effects of the disease. 6th, *The asthenic form :*—here evidences of general debility are soon present, weak and rapid pulse, the "dirty looking opaque aspect of countenance," sordes on the gums, and muttering delirium, warn us that the local affection has depressed the powers of life ; several of the severer symptoms of the affection are wanting—and the patient dies from the failure of the heart's action.

Of all the foregoing forms of the disease, Dr. Jenner gives examples in brief summaries of cases showing the progressive stages of the malady and its results.

Such may be taken to be the more usual forms in which diphtheria exhibits itself, and they are sufficiently alarming in themselves even of we did not know the enormous mortality that they are capable if producing. And we trust that our readers will prepare themselves for the efficient treatment of the disease (should it ever (unhappily) visit India) by the careful perusal of the valuable researches of our authors.

We can do little more than briefly allude to the treatment of the affection as proved by the experience of those who have practically witnessed it, and on this point two different plans are recommended—one partly local, and the other chiefly constitutional.

M. Bretonneau and the writers of the other *Memoirs* advocate the use of cauterization by hydrochloric acid or nitrate of silver.

If the symptoms of asphyxia become urgent they seem to rely upon mercury and emetics ; and tracheotomy, if practised before the symptoms become *imminent.*

Depletion of blood is advocated *occasionally* by M. Bouchut, although objected to by Bretonneau and Trousseau.

For venesection as proposed by Bouchut, M. Daviot would substitute leeches, repeated if necessary.

Warm and moist applications are condemned, but blisters are recommended to be used with even greater caution, for (as also shown by Dr. Greenhow) the diphtheritic action may be set up on the raw surfaces thus occasioned.

The treatment practised by English physicians is however more constitutional and opposed to the cauterizing theory of the French school.

The following extracts may sufficiently explain the theory

of the treatment found most successful in England and Ireland (we quote from Dr. Greenhow):—

"A supporting plan of treatment and the avoidance of blood letting and other antiphlogistic treatment." (p. 261.)

"Applications externally to the throat are entirely useless to the patient." (p. 263.)

"The only instance in which much benefit can be expected to arise from local applications (internally) of escharotics, is when the patient is seen at a very early stage of the illness, while the throat is simply inflamed, or the exudation, if it be already present, is circumscribed, fully in view, and surrounded by healthy tissue." (p. 264.)

"Whilst, however, the severer kinds of local treatment should thus be very cautiously employed, much benefit will generally be derived from the use of milder and soothing detergent applications." (p. 265.)

In the works both of Dr. Greenhow and Dr. Jenner, the same general line of treatment is recommended. Constitutional treatment chiefly by Iron, Ammonia, Bark and Wine must be relied on, and the latter more especially in the asthenic form of the disease to which we before alluded.

The Tincture of the Sesquichloride of Iron may be regarded as the great sheet anchor in the treatment of the disease, and the varying symptoms with which diphtheria may be complicated must be met by appropriate treatment.

We have entered sufficiently upon the subject of diphtheria to awaken, we hope, a desire on the part of our readers to become more thoroughly acquainted with its literature.

Of the value of the memoirs we should speak in the highest terms, had not experience proved that another line of treatment than that therein advocated has proved more successful in England. But, at the same time, they contain much valuable information as to the Pathology of the disease.

Dr. Greenhow's work is a most valuable and complete one, and reflects the highest credit on the erudition, skill, and literary powers of the author. Dr. Jenner's little book contains much practical information, the result of his own experience, and the whole three works present a valuable record as regards one of the most interesting diseases that has engaged the attention of the profession for many years.

A Treatise on Medical Electricity, Theoretical and Practical; and its use in the treatment of Paralysis, Neuralgia, and other Diseases. By J. ALTHAUS, M.D.—London: TRÜBNER AND CO., 1859, 8vo., pp. 352.

THERE are few questions upon which there are greater diversities of opinion than that regarding the value of electricity as a therapeutic agent, and we feel disposed to welcome heartily any book which places before us a *scientific explanation* of the theory of its application, and which also informs us as to the cases and manner in which it should be employed, and, on the other hand, in which it should not be used.

We say that a *scientific explanation* is valuable, and it is so, in great part, in consequence of the flood of worse than useless pamphlets on this subject which have been poured out on a credulous public, and are really intended, not to remove their sufferings so much, as to relieve them of their money in exchange for some special instrument—the use of which is declared to have cured every known disease, from toothache to gout, and which cures with equal facility, nervousness and morbus coxæ.

Dr. Althaus addresses himself to his subject in a different spirit, and fairly opens his case by an admission as to the doubtful nature of the results hitherto achieved by this agent. The object of his very valuable book is to guide our actions in employing it, and he points out, as we believe, the real sources from which much of this uncertainty, as to the results of it, has arisen.

He truly remarks in his Preface:—

"There are few remedies employed in the treatment of disease, on the value of which the professional mind is less settled than on that of galvanism. Enthusiastic panegyrists contended fifty years ago, and contend still, that it is a therapeutical agent superior to all hitherto discovered, whilst the great majority of the profession entertain serious doubts as to the reality of the remarkable successes which are now and then recorded by medical galvanists.

"The differences of opinion about the therapeutical value of electricity are readily to be understood, if we bear in mind that the mode in which electricity is applied has an all-important bearing upon the results. It is true that even by a careless employment of galvanism a few accidental successes have been obtained; but in ninety-nine cases out of a hundred, empirical galvanists, being unacquainted

with the physiological effects of electricity, have been disappointed, and have brought the remedy into undeserved contempt.

"We know that, whatever may be the properties of the nerves, they can be called into action by galvanism. But the effects are widely different according to the form of electricity that is used; again, the quantity and intensity of electricity are both of great importance; not less so the mode in which it is transmitted to the human body, and the length of time during which its action is kept up. In fact, we are able, by merely varying the modes of applying electricity, to rouse or to kill the vital power of the nerves, and to diminish or to increase their properties. Hence electricity can only be expected to be of service in the treatment of disease, if we are guided in its use by an exact knowledge of the physiological effects which it will invariably produce. I have, therefore, been most anxious to render the physiological part of my work as complete and comprehensive as possible."

After a candid admission that electricity is no more infallible than quinine and croton oil, he alludes to another, and very fruitful, source of want of success in the application of electricity.

"There is another important point upon which I feel obliged to dwell: patients are recommended by their physicians to undergo a course of galvanic treatment in many instances only after every other remedy has been tried without success, and when the disease is of such long standing as to afford but little hope of ultimate recovery. What beneficial results might be obtained in certain affections of the nervous system, if the electric treatment were resorted to in an earlier stage of the complaint, may be conceived from a perusal of the chapter in which the effects of Faradisation in a number of cases of hysterical aphonia are detailed. I shall be especially gratified if I succeed in inducing more frequent recourse to the electric treatment in certain forms of neuralgia, which defy all other therapeutical treatment, and which are wonderfully amenable to electricity.

A brief glance at the contents of the several chapters of this book will best enable us to indicate its nature and the complete manner in which our author has investigated the subject under inquiry.

Chapter I. considers the several forms of electricity; *Static*, when developed by friction, and *Dynamic*, including both galvanism and electro-magnetism. Under the head of Galvanism the various *piles* and *batteries* for the production of the galvanic stream are considered; and the experiments of Matteucci and the researches of Eckhard are noticed. In discussing electro-magnetism allusion is made to the discovery in 1831, by Professor Faraday, of the power of

electro currents, "as well as magnets, to develope, by induction, electric currents in conducting wires." The subsequent researches of Professors Magnus and Dove, of Berlin, are also considered.

Chapter II. considers the subject of Electro-physiology and the action of the electro current on the brain; spinal chord; the organs of vision, smell, hearing and taste; on the motor nerves and muscles; upon the sentient nerves; upon the mixed and sympathetic nerves; upon contractile fibre-cells; the heart; blood; skin; and bones; is fully and clearly considered. This chapter is one of great value, and a full comprehension of it is essential to the appreciation of the more practical parts of the volume before us. We can commend it to our readers as a good summary of all that is practically important both in the labours of former experimenters and in the experience of the author.

The third Chapter treats of the various apparatus employed, and of the method of their application.

In Chapter IV. the author having previousiy examined the researches of *Marshall Hall, Pereira, Todd, Copland*, and *Duchenne*, and compared them with his own observations, thus sums up the considerations which are of importance in estimating the value of electricity as a means of diagnosis.

"If the excitability of the muscles—or rather the polarity of the motor nerve—be *increased* in the paralysed limb, the case is one of *cerebral paralysis*, connected with an irritative lesion within the cranium.

"If the excitability of the muscles be nearly or totally *lost*, we have in all probability either *lead palsy* or *traumatic paralysis;* but it must be kept in mind that certain hysterical and rheumatic palsies of long standing present the same peculiarity; and that it also may be found in cases of disease of the brain and the chord.

"*If paralysed muscles respond readily to the electric current*, there is no lead in the system, nor is the connection between the motor nerves of the paralysed muscles and the cord interrupted; but if such cases are of long standing, they are due to brain disease; and if they are of recent standing, they are generally instances of *hysterical, rheumatic*, or *spontaneous* paralysis. (p. 246.)

These very clearly expressed and definite rules would seem to be fully borne out, as to their accuracy by the various cases cited by Dr. Althaus in the preceding pages.

Hitherto the contents, a brief sketch of which we have given, are chiefly of a theoretical character; but the concluding chapter of the book is devoted to that which forms the

subject of greatest interest to those who desire to avail themselves of this method of treatment. It is entitled *Electro Therapeutics—the use of Electricity in Medicine.* Those, however, who have considered the various cases in which it is thus employed, will remember that the term *Medicine* here must be taken in its most comprehensive sense for—

"In Medicine, electricity has been successfully employed in the treatment of certain paralytic and spasmodic diseases, and of hyperasthesiæ and anasthesia; it has been used, besides, for the absorption of rheumatic callosities, and, as a means of transport to convey medicinal substances into, and extract such substances out of the human body. In Surgery, electricity may be used for producing the coagulation of blood in aneurisms and varices; for the dissolution of urinary calculi; for actual cauterization; for the treatment of ulcers and the absorption of exudates. In Midwifery, galvanism has been found useful as a stimulant in cases of tedious labor arising from uterine inertia, and in certain instances of hæmorrhage from the uterus."

After this generalisation of the subject our author enters into the consideration of special diseases for which galvanism is useful, and first investigates the mode of action whereby it benefits *paralysis.* On this subject he submits three propositions, which, however, clearly demonstrated in his work, would, perhaps, assume a greater knowledge of electro-physiology on the part of a portion of our readers than they probably possess, were we to reproduce them here. We may however accept his general conclusion:—

"Galvanism acts in paralysis by restoring the lost mobility to the molecules of the nerves and muscles, and by causing contraction of, and a more considerable supply of arterial blood to, the paralysed muscles. * * * *

As to the *form of electricity to be used in paralysis,* we must act in accordance with the electro-physiological law first established by Du Bois-Redmond, viz., that the motor nerves are not excited by the absolute amount of the density of the current, but merely by the variations which occur in the density of the current from one instant to the other; and that the amount of excitation caused is proportionate to the rapidity with which these changes take place. Hence it results that the continuous current should not be used in the treatment of paralysis, but only induction currents, which consist of great and sudden variations, and are thereby capable of exciting the vitality of the motor nerves to the highest degree (pp. 255, 256)."

The consideration of the different varieties of Paralysis

and their treatment extends over upwards of 50 pages, and forms one of the most valuable and interesting topics of all those discussed.

Cases illustrative of the author's practice in this and several other diseases requiring galvanism are given; and the whole essay is one deserving the diligent perusal of every one who desires to be informed on the matter. In this country especially where, from climateric influences and other causes, diseases of enervation are of frequent occurrence, full and comprehensive details of the Protean forms in which loss of nervous force is evidenced, are of extreme value, and we think that the book we have now considered is better fitted for this purpose than any we have before seen.

In method of arrangement and logical argumentation Dr. Althaus may be ranked as far before the great majority of medical writers; while the comprehensive and masterly manner in which both theory and practice are considered, proves our author to be well versed in the difficult subject upon which he writes.

We would desire to impress upon those who may determine to study this subject, two points upon which the author dwells with commendable candour. Of one of these—the non-infallability of electricity—we have already spoken. The other point is the accidental injury that may be inflicted by its injudicious application. He candidly admits that though capable of doing good it may do harm also; and that it is not one of those remedies of which we may say that if it does no good, it will not do any harm. "Thus blindness has been caused by the application of the continuous current to the face in paralysis of the portio dura; fainting fits, cramps, hysterical fits, and palsies have been produced by administering too powerful currents; and fresh apoplectic attacks have been induced in patients who had suffered before from hæmorrhage into the brain." (p. 344.)

This caution should not be forgotten.

The Volume concludes with an Appendix treating of Electrical conditions of the atmosphere and their effects upon the nervous system of man. Lightning, as a cause of death, is also briefly discussed. It is doubtless within the recollection of our readers that we recorded at p. 179 of our last volume two cases treated by Mr. Day, in which recovery took place after considerable injury from this cause.

In concluding our notice of Dr. Althaus' work we do so with pleasure, for we are enabled to recommend it as highly deserving the most careful perusal. This will be rewarded by a large amount of practical information conveyed in clear and elegant phraseology, and abounding in evidences of the high scientific attainments of the author.

The Science and Art of Surgery: being a Treatise on Surgical Injuries, Diseases and Operations. By JOHN E. ERICHSEN, Professor of Surgery and Clinical Surgery in University College, and Surgeon to University College Hospital. Third Edition, Illustrated by 450 Engravings on Wood—London: WALTON and MABERLY, 1861, 8vo., pp. 1167.

IT would be difficult to determine at what precise period a book may be said to be out of date, or how many years may be assigned as the natural period of its life. Perhaps the rule would be, like many others, verified by the exceptions to it, and we should find these illustrations of its verity so numerous as to make us doubtful as to any propriety in fixing a limit to the period of its existence.

But, when, in these publishing days we find old friends re-appearing with periodic regularity and acquiring considerable stoutness with advancing years, we may safely conclude that their preceding editions have done well, and that the business they are engaged in still continues flourishing.

To this general rule we refer in congratulating the profession on the appearance of a third edition of Mr. Erichsen's very valuable and well known work, which has run through two editions in eight years: and has slightly increased both in bulk and pictorial embellishment since its first appearance. From 950 pages it has risen to 1167, and the illustrative engravings are now 450 in lieu of 250. On this point we may however add, that we do not attach very great importance to the latter fact, as several of the engravings are of the most minute description, and the illustration of surgical works, to a very considerable extent, has become almost an essential in these latter times.

There is nothing either in the contents or arrangement of the present edition requiring any especial mention, but we

may generally say that it is as excellent in every respect as the two former editions were.

In many respects Mr. Erichsen is fitted to hold a first place among surgical writers, and the name of his book happily expresses its purpose, which is to convey at once the theory of disease and its phenomena and the best practical means of removing or remedying it.

On the Origin of Species by means of Natural Selection, or the Preservation of Favored Races in the struggle for Life. By CHARLES DARWIN, M.A., Fellow of the Royal, Geological, Linnean, &c. Societies; Author of "*Journal and Researches during H. M. S. Beagle's Voyage round the World*"—London: JOHN MURRAY, 1861. Third Edition (Seventh Thousand) 8vo., pp. 538.

(Second Notice.)

On the Origin of Species by means of Natural Affinity. By H. FREKE, A.B., M.B., M.D., T.C.D., M.R.I.A.; Fellow of the King and Queen's College of Physicians in Ireland; Physician to Dr. Steevens' Hospital, Dublin; Lecturer on the Practice of Physic and of Clinical Medicine in Steevens' Hospital School of Medicine, &c. —London: LONGMAN and Co.—Dublin: FANNIN and Co., 1861, 8vo., pp. 135.

In a recent number of this publication we gave insertion to a very able review of Mr. Darwin's "Origin of Species," furnished to us by a naturalist of note in this country.

Subsequent to the publication of that review we were favored by another distinguished contributor with an article on the same subject, including also a notice of a more recent work by Dr. Freke, relating in some degree to the points raised by Mr. Darwin. As the latter article may be read with profit by those interested in the important subjects discussed by Mr. Darwin, we, at the risk of being charged with repetition, have no hesitation in giving it a place in our columns.—EDITORS.

BEFORE entering upon the consideration of the two works, the names of which are placed at the head of this article, we may briefly premise that, although similar in the declared nature of the subject matter, nothing can be more widely different than the actual theme of discussion in each. And, feeling that the subject of the *Origin of Species* could not be discussed satisfactorily in our necessarily limited space, we prefer simply presenting analyses of the two books, with

a view to stimulate the attention of our readers, and to state our views of their value as guides to knowledge, or as indications of original thought on the part of their authors.

Mr. Darwin's book is so truly "one long argument" that it would be even more useless than injudicious were we to encumber our pages with mere passages quoted from it: and we prefer a brief analysis as more likely to indicate its general scope and tendency.

The source of the Origin of Species is not considered now for the first time.

"Does not," observes John Hunter,* "the natural gradation of animals from one to another lead to the original "species? And does not that mode of investigation gradually lead to the knowledge of that species? Are we not "led on to the wolf by the gradual affinity of the different "varieties in the dog? Could we not trace out the gradation in the cat, horse, cow, sheep, fowl, &c., in a like manner?" In a note made by the illustrious editor of the very remarkable book, from which this passage is quoted, we find the following: "The best attempt to answer this supreme "question in zoology has been made by Charles Darwin in "his work entitled 'On the Origin of Species,' &c."

It is now very generally known that Professor Owen does not adopt the views of Mr. Darwin concerning the origin of species, but all, even those who differ most widely from Mr. Darwin, and the learned Professor among the number, must admit the singular ability with which he attempts to solve the great difficulty as to the origin of species, and the extraordinary candour with which he enters upon the discussion of the many grave objections to his theory.

Of late the rival hypotheses with reference to the fixedness or changeability of species have received so large an amount of public attention, and have, even before popular assemblages, been discussed with so much earnestness, that we may here perhaps be pardoned if we state simply and in popular language, the cases of the two chief claimants who at present stand on trial before the great tribunal of the scientific public. It is our duty in making such a statement to be strictly impartial, and we shall strive to be so.

The creative hypothesis, sometimes spoken of as the Linnean, supposes all species to be fixed and immutable; pre-

* *Essays and Observations on Natural History, Anatomy, Physiology, Psychology and Geology*, by JOHN HUNTER, F.R.S. Arranged and revised by RICHARD OWEN, F.R.S., D.C.L.—London, 1861. *Vide page* 37.

suming that all groups of animals and plants which differ so decidedly from their fellows as to be capable of arrangement in, what naturalists are pleased to call specific classes, have been so formed by a distinct creative act, and have so come down from past ages to the present time, unchanged and unchangeable, save in very slight degrees. Thus, to offer a familiar example, the various species which form the great Herring family (Clupeidæ) so largely existing in our seas, are on the creative hypothesis each believed to have been distinctly created by a fiat of the Almighty, and the common herring and the pilchard, the sardine and the sprat, are looked upon as the lineal descendants of a herring, a pilchard, a sardine or a sprat fashioned by the Creator's hand in ages past, and retaining still and always, while they continue to exist, the distinctive characters given to each at the beginning. Like the human race, in fact, each species has had its Adam, and since the original of each first passed through its nostrils, or its gills the vivifying element, a line of continuous descent has gone on unaltering, unaltered, and unalterable, except in slight individual particulars.

The hypothesis of Mr. Darwin, or, as we would rather call it, the theory of descent with modification, accounts for the origin of each species very differently. On this hypothesis it is supposed that there exist in Nature powers acting very slowly, but very surely, and capable of giving rise to new species by gradual modification, and without the special exercise of creative power. To make use of the former illustration, that in times long since gone by, a fish existed which has been the common ancestor of the herring, pilchard, sardine, sprat, &c., each species is thus supposed to be wonderfully and perfectly adapted to the precise position which it occupies in nature, by the action of secondary causes, and not by the direct interposition of Providence in every instance.

Mr. Darwin, in the work which stands at the head of this article, attempts to point out what are the powers in nature which, acting in obedience to definite laws, produce by slow gradations the great results which he attributes to them; subsequently he discusses the difficulties and the objections which are likely to be urged against his theory; and in the final chapters he points out the large number of facts which seem to him to harmonise with it.

Indeed we cannot conceive that any one, how much soever they may differ from the views of the author, will

read the chapters on geographical distribution and that on the mutual affinities of organic beings, morphology, embryology and rudimentary organs, without admitting that they find in the theory of descent with modification, an explanation of many facts hitherto unexplained. Buffon, Lamarck, the author of the "Vestiges of the Natural History of the Creation," and other naturalists, have each had their theory of descent, and have thereby given evidence of the necessity, of the "*desiderium*," of the longing, which the scientific mind feels for a scheme, which shall account for the origin of species without supposing each to have been separately and distinctly created. But, assuredly, none of these theories have ever come before the world in a garb so simple and yet so fascinating as those put forward by Mr. Wallace* and Charles Darwin. Let those therefore who read the latter's book be warned, for we assure them they shall find it a strangely captivating and seductive work.

To give a general notion of Mr. Darwin's line of argument, we may suppose that our globe represents a large empire, wherein presides a great and inexorable Judge who fills all offices, from the lowest scavengerships to the highest crown bearers, on the competitive system: retaining each in the precise position for which nature has adapted him, until a better turns up, when the first occupant is pushed aside and surpassed by him who has acquired some advantage, making him better suited for the post, and consequently more successful in the struggle or competition for the place. No existing species can, therefore, be said to be in advance of another; the kingly lion fills his space in nature no better than the insignificant gnat fills his; the tape-worm and the fire-fly, the shark and the dolphin, the condor and the ostrich, the gorilla and the elephant, is each of them better suited than his fellow for the peculiar nook in creation which each fills, but is in no sense in advance. If, however, any new variety be born, whether shark or gorilla, condor or elephant, whose color, size, form, or any other slight peculiarity, gives him any advantage over the individuals of his own species, our great Judge pronounces this one, and those of his family who inherit his advantageous peculiarity, to be the successful competitors for the place; his descendants, as they become more numerous, turn out their predecessors, who gradually die and become extinct. So, in the lapse of time, the accumulation

* Proceedings of the Linnean Society, August 1858, p. 57.

of slight peculiarities, each of which has conferred some advantage, however trifling, on the possessor, makes the descendant differ more and more from the ancestor, slowly but certainly, if Mr. Darwin be correct, making mere varieties pass into what are ordinarily regarded as species. Nor can we speak of progress or advance with any other meaning, so far as species of plants and animals are concerned, than as the acquisition of some advantage of form, colour, instinct, &c., which tends to make the individuals possessing it, more successful in the struggle they have to undergo.

This struggle for place or life, and the natural and undoubted tendency in organised beings more or less fruitfully to produce descendants a little different from themselves, (to vary) leads to the accumulation of varieties or differences which constitutes species; such, with the help of some subordinate ones, are the great engines which give rise to the natural evolution of species according to our author.

How great is this struggle for existence! let us watch a clutch of frogs eggs placed in an aquarium, let us hatch them, and watch the progress of the development of the larvæ—if the water be a few inches in depth how many perish, not having strength enough in their tails (at this early period when they sink head foremost rapidly) to keep them constantly plying to the surface as they should do. Put in a single stickleback, how many fall victims to him—out of myriads, how few ever live to become frogs. So slight a variation as a little more breadth and strength in the tail, as we have ourselves often observed, saves multitudes from death during the early periods of larvæ-life, while the external gills still remain; for it has been shown by direct experiment that although breathing by branchiæ, that even at this stage the tadpole cannot live or thrive without either coming to the surface or having, at least, a very constant supply of highly aërated water. An apparently trifling variation in colour, assimilating the little animal to the shade of the water plants growing in their native pools, or to the mud or slime which forms their sides and bottoms, saves many from the pursuit of the voracious enemies which destroy them in such vast numbers.

We call these variations slight or trifling, but when they come to be multiplied by billions and tens of billions, we perceive that slight though they be, they confer great advantages on the races and families of tadpoles which possess them, and, in the long run, enable them to engage more

successfully in the great race for life than their less gifted competitors.

Besides the active or progressive principle which gives to each organised being a power of, from time to time, producing offspring, varying somewhat from itself, we also recognise a passive or, so to speak, negative or conservative principle which tends to produce the hereditary resemblance between parent and offspring with which every one is familiar. A *greenish* or a broad-tailed tadpole becomes then a frog, whose conservative principles dispose him to be the parent of young, which in their turn have broad tails or a greenish colour.

The progressive principle of variation gives rise to novelties of form, structure, instinct, &c., which, if proved by the competitive system to be of use to the creature in the great struggle for existence, are adopted, retained, and accumulated by the conservative principle of hereditary resemblance; but, in nature as in politics, conservatism will have nothing to do with what has not been proved to be useful, all variations therefore which are not so, are transient and short-lived. Howsoever feeble may be the influence of these principles in their action, yet if it be admitted that they are actually in operation, then assuredly if periods of time sufficiently long be granted, great results may be accomplished. No one now doubts that causes, which acting during the short epoch of historic time have produced little change on the continents and islands of the earth, have, nevertheless, in the countless ages of which geological records speak, altered the whole aspect of the globe.

The laving of the tides, the flowing of rivers, the falling of rains, the action of ice, the growth of corals, &c., are, if we look to brief periods, but feeble influences to which to attribute such great changes, yet we know what these influences have accomplished during the lapse of myriads of ages. So, argues the author of the theory of descent with modification, the influences already indicated can do great things; they also can, during ages uncountable, form their islands and their continents, their species and their genera. Give me, said Archimedes, a lever long enough, and where to stand—I can move the world. Grant me, says Darwin, length of time enough and a few created forms, I can people it.

We have purposely stated in, what may be called by some, a very mild form, the theory advocated by Mr. Darwin in

his book, and we have done so because we think that some of his reviewers have dealt unfairly with him, and stated his views in so extreme a fashion as to be guilty at least of disingenuousness, if not throwing themselves open to a charge of dishonesty. If the hypothesis of descent with modification can satisfactorily account for the origin of a herring, pilchard, sprat and sardine, from some long since defunct ancestor common to them all, then unquestionably this hypothesis accounts for the origin of what are ordinarily regarded as species. If we are told that all the doves which fly over the earth, or all the different species of gulls which frequent the waters, have each sprung from parent forms, and that as time has flowed on, nature has selected such descendants as were produced in a state well qualified to engage successfully in the struggle for life, and suited by their accumulated peculiarities to the aspects of nature which surround them, we do not shrink from the contemplation of the matter; nor do we ridicule it as absurd, or condemn it as impious. Many, indeed, will be found to follow Mr. Darwin to his conclusion that a much fewer number of created forms than at present exist, have been sufficient to give rise to the varied species of plants and animals which surround us.

But when we are told that Mr. Darwin holds that all spring from one primordial germ into which life was first breathed by the Creator; that the elephant and the flea are come of one stock, we feel that this is at least a matter beyond the reach of human knowledge, wrapt for ever in mystery for ever to be unfathomable and unknown. Moreover, we take it to be an unfair way of making Mr. Darwin's statement. Mr. Darwin no where says that he believes all living things to have sprung from one first created; what he does say is that the same line which leads him to conclude, that the many existing have sprung from, fewer pre-existing species, if followed on and on, leads by analogy to one prototype, "*but analogy may be a deceitful guide.*"

Those who oppose the theory of descent, and yet in a spirit of fairness advocate the creative hypothesis, admit the tendency to variation, and cannot ignore the struggle for existence; but they say the modifications which occur under these influences are limited in their extent. All animals are influenced by the circumstances which surround them, by temperature, food, habits, &c., but they urge such influences

acting through no amount of time, can produce more than a certain amount of variation. Strange indeed are the differences to be observed in the physical conformation and (if we use the term) intellectual capacity of divers races of dogs and horses, yet all are dogs or horses, distinguished from other species by essential differences greater and more special than the characters which distinguish families and individuals from each other. Such differences they admit are easily produced in plants and much more readily in some animals than others ; the varieties of dogs are very numerous, varieties of the domestic cat much less common, yet among their variations they never cease to be dogs or cats, having the distinctive characteristics which make them known as such not only to man, but to their fellows, who will greet them with a friendly snuff or mew, no matter how eccentric may be the peculiarity which the *fancier* has produced by artificial selection.

In short they say that variation occurs only within certain limits, which limits bound each species ; such limits may be difficult to define, and naturalists must and do constantly err in their attempts at definition ; but this does not prove any thing more than man's incapability of precisely indicating the characteristics of those groups, which have existed from the beginning, as distinctly created specific groups.

Now, after all, there is not so very wide a difference between these rival hypotheses thus stated in general terms, and thus admitted by all those who are pressed in argument. The one grants a few created forms, capable of being narrowed by analogical reasoning to one. The other requires many created forms, but when pressed to define its own created species, finds so much difficulty or impossibility in the attempt, that it is content to admit that all the trouts and salmons of our lakes and streams (Salmonidæ) may have sprung from one created salmon, or all kinds of grass from grass, and so forth. But if we take each hypothesis in its integrity, that of descent from very few or one, against that which assumes the distinct creation of every group recognised in Zoological works as species, we must, in order to determine upon which to adopt, answer the following questions. Which appears to us to be the simpler and to accord best with the teachings of natural science in her various other departments, whereby, in obedience to laws framed by the Creator, suns and systems, oceans and continents, mountains and mole hills are produced by

causes which our own brief space of existence makes us, with characteristic presumption, call trifling? And secondly, which on examination is found to have in harmony with it the greatest number of acknowledged facts? Whatever old prejudices may incline us to say in answer, candour forces us to reply that the hypothesis of descent is the simpler, it, so to speak, economises the exercise of creative power, it husbands the miraculous strength of the Almighty, it harmonises with the view that He who in the moral world is the God of Mercy and of Justice, is in the physical the God of Order and of Law.

There are, even in the present day, many intelligent persons whose souls delight in the supernatural, and revel in the miraculous, who charge with irreligion those who "perceive that in the material world changes are brought about "not by insulated interpositions of divine power exerted in "each particular case, but by the establishment of general "laws," forgetting Butler's simple but admirable saying, "that "what is natural as much requires and presupposes an "intelligent agent to render it so—*i. e.*, to effect it continually "or at stated times, as what is miraculous or supernatural "does to effect it for once."

When we come to enquire which hypothesis has in harmony with it the greatest number of acknowledged facts, we must refer our readers to chapters XI., XII., XIII., of Mr. Darwin's work, nor do we fancy that any unprejudiced person will peruse these chapters with care, without admitting that the theory cannot be lightly set aside which explains such large classes of established and unquestionable facts. Perhaps it is in the consideration of the geographical distribution of plants and animals that lies the stronghold of the theory of descent with modification; not less numerous, however, are the facts in comparative anatomy and embryology which harmonise with it. The fundamental identity universally recognised as existing between the fore limb of a dog and a horse, the wing of a bat, the fin of a porpoise, the arm and hand of a monkey, the entire vast range of homologies—the idea of unity of type acquires a meaning and an importance unknown under the creative hypothesis. We know that the apteryx and blind worm have the bones of the wings, and limbs lying underneath the skin in a rudimentary condition of development; that the guinea pig has incisor teeth which it never uses, as it sheds them before birth; that many beetles have wings beneath wing

cases which are sealed down over them so as to render them quite useless; that the eggs of the Surinam toad produce tadpoles with tails as well adapted for swimming as any of their kind, although they never enter the water as tadpoles; that, in short, multitudes of plants and animals have rudimentary organs which, at least, in very many cases, are wholly useless to their possessors. We know that all these morphological facts are explicable by community of descent, and that they *have* not been explained in any other way.

Such then is the argument of Mr. Darwin, and to it and the pages in which it is evolved and illustrated, we would direct our readers' attention.

That on it diversities of opinions may, and must exist we cannot doubt; but there can be no second opinion as to the manner in which it is submitted to our notice.

Clear and lucid in style, closely argued, and set forth with a plainness and simplicity of diction remarkable in dealing with so abstruse a subject, the book commands our respect, as the able and important exponent of views to which we must accord considerable praise for ingenuity, even if we do not coincide in them wholly.

Mr. Darwin thus concludes his work, pp. 524 and 525:—

"Authors of the highest eminence seem to be fully satisfied with the view that each species has been independently created. To my mind it accords better with what we know of the laws impressed on matter by the Creator, that the production and extinction of the past and present inhabitants of the world should have been due to secondary causes, like those determining the birth and death of the individual. When I view all beings not as special creations, but as the lineal descendants of some few beings which lived long before the first bed of the Silurian system was deposited, they seem to me to become ennobled. Judging from the past, we may safely infer that not one living species will transmit its unaltered likeness to a distant futurity. And of the species now living very few will transmit progeny of any kind to a far distant futurity; for the manner in which all organic beings are grouped, shows that the greater number of species of each genus, and all the species of many genera, have left no descendants, but have become utterly extinct. We can so far take a prophetic glance into futurity as to foretell that it will be the common and widely spread species, belonging to the larger and dominant groups within each class, which will ultimately prevail and procreate new and dominant species. As all the living forms of life are the lineal descendants of those which lived long before the Silurian epoch, we may feel certain that the ordinary succession by

generation has never once been broken, and that no cataclysm has desolated the whole world. Hence we may look with some confidence to a secure future of equally inappreciable length. And as natural selection works solely by and for the good of each being, all corporeal and mental endowments will tend to progress towards perfection.

"It is interesting to contemplate an entangled bank, clothed with many plants of many kinds, with birds singing on the bushes, with various insects flitting about, and with worms crawling through the damp earth, and to reflect that these elaborately constructed forms, so different from each other, and dependent on each other, in so complex a manner, have all been produced by laws acting around us.

"These laws, taken in the largest sense, being growth with reproduction; inheritance which is almost implied by reproduction; variability from the indirect and direct action of the external conditions of life, and from use and disuse; a ratio of increase so high as to lead to a struggle for life, and as a consequence to natural selection, entailing divergence of character and the extinction of less-improved forms. Thus, from the war of Nature, from famine and death, the most exalted object which we are capable of conceiving, namely, the production of the higher animals, directly follows. There is grandeur in this view of life, with its several powers, having been orginally breathed by the Creator, into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning, endless forms most beautiful and most wonderful have been, and are being, evolved."

The work of Dr. Freke is possessed of a title which, although bearing little signification in itself, prompts the enquiring mind to seek the explanation of what is meant "*The Origin of Species by means of Organic Affinity.*"

We have read the book, honestly from cover to cover, noted the contents, and put our own analysis in the plainest language; and yet (with shame we confess it) we have not succeeded in our search after the author's verification of what appears to us to be an indistinct and vague, though high sounding title.

For reasons that will be apparent from our subsequent remarks, we desire to afford to Dr. Freke the advantage of himself explaining the meaning of the phrase by which his book is named. He says (pp. 75, 76, 77.)

"What I desire to convey by those terms is simply this, namely, that the different species of vegetable and animal existing throughout organic creation have emanated from different species of embryonic germs, and that these embryonic germs themselves have originated in a union of different species of simple organizing agents,

which union of those simple organizing agents has been brought about by *organic affinity*. That is, in other words, this union of the different species of organizing agent, comprised in the embryonic germ, has been brought about by the affinity naturally subsisting between one such species of organizing agent and another; and that consequently the origin of the embryonic germs which have originated the species, is the organic affinity referred to. I shall repeat the same statement in other words. What I am desirous of conveying is this, namely, that the *organic* affinity which must naturally subsist between the different species of organizing atom—analogous to the *chemical* affinity which subsists between different species of *mineral* atom, that this *organic affinity*, I say, has originally forced into union different species of organizing matter—different species of *simple* organizing agents,—and has thereby originated various compound organizing agents, which compound organizing agents are the *embryonic representatives* of the various different species of complex vegetable and animal which have since existed in organic creation. This *organic affinity*, I say, has caused the several *different species* of simple organizing agent to combine in a vast variety of forms, as regards, observe, both their *number* and their *relative* arrangement; in all respects analogously to the combinations of mineral elements which we see take place for the formation of the *inorganic* world, as that world is now found to exist.

"These combinations of different species of simple organizing agent—combinations differing from each other, bear in mind, both in the *number* and the *relative arrangement* of their respective component different species—these combinations, I say, constitute the *embryonic germs* of the various different species of vegetable and of animal.

"These embryonic germs, in the discharge of their function, develope different species of organized beings; that is, species of organized beings *differing* from each other both in the *number* and the *relative arrangement* of their respective component organized tissues.

"The reader will bear in mind that, in the commencement of these observations, I endeavoured to make it apparent that the difference in the species, respectively to be recognized throughout organic creation, *consists*, for the most part, in a difference in the *number* and the *relative arrangement* of their respective component organized structures, viz., bone, muscle, nerve, &c., and that these structures are themselves comprised, for the *entire* of organic creation, in a comparatively limited number of distinct species of organized tissue. The reader is now in possession of my views as to *how* that difference in the number and relative arrangement of those component organized structures has been brought about, or what it is, in a word, which has been the origin of that observed distinction.

"Such then is my opinion as to "*the origin of species*," namely, that the embryonic representatives of the different species were first formed by the operation of *organic affinity*, and that subsequent-

ly these embryonic representatives, as their especial physiological function, developed the different species of vegetable and of animal.

"But there is an additional question in relation to this inquiry, which must at once suggest itself to every reflecting mind, and it is this, namely, what has been the *origin* of the *components* of those embryonic germs? Whence have the *simple* organizing agents, which have been brought by the operation of organic affinity into union to form embryonic germs, whence have these simple organizing agents themselves had their origin? In a word what has been the origin of the countless millions of *individual* simple organizing agents which must now be comprised under each distinct species of organizing matter?

"I hesitate not to state, in reply to this question, that to me it would appear to be opposed to all that is known of the great Creator's arrangements, to *doubt* for a moment that all the countless myriads of millions of individual organizing agents, comprised under each distinct species of organizing matter since the commencement of organic nature, have emanated for each distinct species from *one solitary germ of that species.*

"Who doubts that *all* the individuals of mankind have descended from one such germ? The number of such doubters is *few.* But *few*, too, there are who doubt the same fact with regard to all the individuals comprised respectively under each of the other species of animals. Why, then, I ask, should the *many* doubt the same fact in relation to the individuals of *distinct species of simple organizing agents.*"

As will be seen from a subsequent quotation, Dr. Freke intends his remarks as to the Origin of Species to apply to a period "antecedent to that in which we are told that God breathed into his nostrils, and man became a living soul."

The *time*, therefore, when the Origin of Species sprung from organic affinity, is quite unsettled, and may have been ten, or ten times ten thousand, years before the animation of our first parent.

The exact *modus operandi* is, we must add, equally uncertain to our minds, and we fairly confess that repeated attempts to master the argument of our author have only made our "*confusion worse confounded.*"

This is no doubt in a great degree attributable to our own want of acuteness, yet, even making allowance for this, we cannot help thinking that the majority of readers will find in Dr. Freke's remarkable production, an obscurity of style which will remind them of the "*darkness which was on the face of the deep,*" in the chaotic period which preceded the time when the Creator called into being the "single primor-

dial germ" in which Dr. Freke believes. Indeed the imaginative reader may push even farther the resemblance between Dr. Freke's style and this age, when the thunders of the breaking billows sounded on the shores, when winds may have raged, and tempests howled, but darkness reigned supreme; for, in his book high sounding forms of words, and terms grandiloquent are met with, yet in almost every page impenetrable obscurity prevails. Let us take for example the following:—

"If, having made ourselves familiar with inanimate creation, with its atoms, its compounds, its worlds and their systems—if, having learned of its attributes and laws, it were announced to us, that some researcher in science having recognised a new species of creation, having seen matter under aspects hitherto unobserved, had attained to the discovery of a new class of compounds—of compounds possessed of symmetrical form—should we not, making analogy the guide of our reason, be led to attribute this new class of compounds to the operation of their attributes, general and specific, in an hitherto unrecognized or new CLASS OF ATOMS." (pp. 10, 11.)

Dr. Freke more than once cheers his reader by the expression "I shall presently endeavour to prove, &c.," so that one goes on hoping that some proof is certainly to burst forth in full splendour on the next page—one constantly hopes that they are about to overtake their friend round the next corner, but the hope is delusive,—he either never came, or he could not wait.

Our readers will learn with surprise that our author quotes passages, of the slight "obscurity" of which he is himself conscious; we find him quoting from himself as he wrote 10 years ago, and adding, (p. 17.)

"Some of the expressions employed in these quotations may possibly, in the absence of the context, appear a little obscure; but, should such be the case, I trust as we proceed they will become intelligible."

We regret to add that our friend round the corner is again absent from his appointment, and that we do not meet with him at any future period of our tedious journey.

And here we are reminded that the work now under notice is made up in great part of quotations from a former work, by the same author, on "*Organisation*" (1848), and from a series of "*Lectures on the Pathology of Inflammation* and *Fever*," published in the Dublin Medical Press in 1851,—'52 and '53.

To these former products of the author's pen we are unable

to refer; but, judging from the number and the length of the quotations given in the present book we should infer that either the former works were very long, or that they are, in spirit, reproduced on the present occasion.

Those of our readers whose libraries embrace the volumes in question can easily verify the reiterated passages; for "*Freke on Organisation*" and "*Freke in Medical Press*" may be stereotyped as the standard authorities to which he refers.

The author confessedly submits his former views for public approval "now for the first time in a distinct and separate form," and we can only regret that we are unable to discern in them any thing more than the profession of a belief on his part that all organic creation originated in one primordial germ.

We are, in fact, no wiser at the end than at the beginning, and yet we learn from a passage, thrice entered in his work, that all he has written "is in perfect harmony with the Mosaic record of creation, and," he adds:—

"I am fully prepared to substantiate that statement God forbid that I should dare to contemplate—far less insanely attempt to establish—any result at variance with the *true* interpretation of His Word; but it must be obvious to every reflecting man who will but reflect upon the question, that there must have been a period in man's first material existence, antecedent to that in which we are told that God 'breathed into his nostrils the breath of life, and man became a living soul.' It is that *antecedent* period that I have been contemplating." (p. 135.)

The above, the concluding passage of the work, is one of the best in all the volume, for we have no doubt about its meaning.

It is preceded by some other passages which enter upon the theological question involved in the apparent contradictions between the written Word of God, and the facts in Physiology, Geology and Astronomy, which seem to clash with its literal interpretation.

On this subject the author writes clearly and well, and it is a matter of regret that the main argument of his work should not have been set forth in the same style. Had it been so we should have been spared the painful duty which has devolved upon us, and we might perhaps have gained clearer views as to what Dr. Freke really means.

There is nothing more distasteful to our minds than the unnecessary introduction of theological topics, in the dis-

cussion of great questions in Natural Science, and our author shows a decided proneness to offend in this particular.

The allusions to Holy Writ are plainly superfluous, if the author is referring to a period before that to which the written Word refers: and that he is so his own pages prove. Again, we have but to turn to the concluding pages in which the author tells us that he desires "his name, however humble, to be enrolled among the number of the champions of religion;" and in which he repeats the oft-reiterated, and never-to-be-forgotten sentiment that "*the works of the Creator's hand cannot be contradictory of his uttered words but the interpretations of both works and words may be, and have been, erroneous.*" Nowhere does the author place before us his own interpretation, yet it is certain that the idea of a single primordial parent of all existing beings is not "in perfect harmony" with the ordinarily received interpretation of the Mosaic record of creation.

Until the author expresses himself more fully on the subject (and we might hope more intelligibly to the common dull mass of mankind like ourselves) than in the greater part of his present work, he should remove the frontlet from between his eyes, and in his next edition erase from his Title Page, Preface, and Text, his tiresome and, we think, unnecessary motto.

"There is nothing advanced in this publication that is not perfectly in harmony with the Mosaic account of creation."

Ready Rules for Operations in Surgery. By ALLEN WEBB, M.D., F.R.C.S.L., &c., &c., &c. *Second Edition*—London: JOHN CHURCHILL, New Burlington Street, 1861.

WE have rarely opened so useful a volume as this of Dr. Webb's. Original in its conception, it has had every advantage which simplicity of arrangement and variety as well as excellence of typography could give it in the way of increasing its utility. To the hospital-surgeon, the general practitioner, and the military surgeon on field service, it is equally invaluable. In the words of a reviewer of the "first edition of the work," it is, in fact, "a surgical operating theatre in print, with the principal operator, the assistants, the instruments, requisites and appliances all before the reader; concluding with the simplest, easiest, and most safe and

rapid manner of operating in each case." To each operation two pages, facing each other, are allotted. That on the left hand contains directions in red ink and large type to the different assistants, while the names of the instruments which they have to prepare for the operator's hand, are set forth in black letters. The right hand page is addressed to the operator himself, and furnishes him with the successive steps of the operation *ab initio usque ad finem.* The minutest and most trivial details are justly regarded as important enough to be specified in each case, while the most important and the gravest parts of the entire operative procedure are detailed in sentences at once curt, concise, and comprehensive. For example, in the *ligature* of the external iliac artery, the operator

"Sees that the light will fall upon the artery when exposed—that instruments are ready and within reach.

1. Whilst the patient lies extended on the table, the limb in a line with the trunk, feels the artery beating where it passes over the brim of the pelvis; marks the spot with the forefinger of his left hand, and there commences his incision through the skin and fascia. This first incision beginning at the point indicated, and half an inch above Poupart's ligament, extends outwards and curves upwards, for three inches; ending two inches above the anterior superior spine of the ilium.

2. He divides the aponeurosis of the external oblique to the same extent, and then the muscular fibres beneath it in like manner, upon a grooved director.

3. He either scratches with his nail, or otherwise cautiously tears the fascia transversalis, so as to get his finger between that and the peritonæum; which last is laid bare to the extent of the external wound.

4. Holding aside the peritonæum with the fingers of his left hand, with the forefinger of his right he feels the brim of the pelvis and the pulsation of the artery. He gets a clear view of the vessel as far as the middle of its course. Whilst the vessel is thus exposed, he scratches through the proper cellular sheath of the artery and dilates the opening. He presses down the vein with the forefinger of his left hand, and passes the helix needle, unarmed, from within outwards. The ligature is passed, drawn back, released from the needle, drawn tight over the end of the finger, to be certain of its effect and then firmly tied with a double knot. One of the threads is cut off, the other hangs out."

Every operating Surgeon is aware of the value of really intelligent assistants, and ready to acknowledge how much the facility and success of an operation depend on the ready

and timely aid of others. With this work in his hands, even a medical tyro can scarcely be excused for failing to qualify himself as an useful helper, and each assistant's duty in every operation is so clearly and forcibly laid down, that both his intelligence and memory will be very slightly taxed in his effort to prepare himself for furnishing the aid which he will be required to give. Thus in the operation in which we have already given the directions to the operator, we find that, after the assistants have arranged the requisite instruments on a folded towel, the

"1st Assistant—Chloroforms the patient, who is laid on his back, head and shoulders slightly raised, diseased limb supported on a level with the trunk.

2nd Assistant—Holds steadily asunder the divided integuments, neither dragging one way nor the other, pressing downwards, so as to render the bottom of the wound as superficial as possible. This he does by pulping with the convex part of the metallic tractors, holding one in each hand, for each lip of the incision.

3rd Assistant—Maintains a gentle steady traction upon the blunt hook or forceps which keeps the external lip of the small aperture in the sheath upon the stretch, thus allowing the needle point to glide between the artery and the vein.

4th Assistant—With broad matallic tractor, keeps the peritonæum away, threads the needle ; if obstructed, clears the eye.

Assistants apply metallic sutures—dress with strips of soap plaster and a bandage."

It will be seen by the extracts given, that all the steps of an operation, both as regards the operator and his aids, are fully given, but given unencumbered with the extraneous matter and the wordiness which characterise systematic surgical works ; and we confidently recommend the work to the profession as one, not only without which no Surgeon's library will be complete, but which will be almost as good to him as an additional hand.

An Expository Lexicon of the Terms, Ancient and Modern, in Medical and General Science; including a complete Medical and Medico-Legal Vocabulary, and presenting the Correct Pronunciation, Derivation, Definition and Application of the Names, Analogues, Synonymes and Phrases (in English, Latin, Greek, French, and German) connected with Medicine, and employed in Anatomy, Animal Pathology, Astronomy, Botany, Chemistry, Comparative Anatomy, Conchology, Crystallography, Entomology, Geography, Geology, Geometry, Ichthyology, Materia Medica, Medical Jurisprudence or Forensic Medicine, Medicine, Microscopy, Mineralogy, Natural History, Natural Philosophy, Nosology, Obstetricy, Ornithology, Pathological Anatomy, Pathology, Pharmacy, Phrenology, Physiology, Surgery, Trigonometry, and Zoölogy. By R. G. MAYNE, M.D.—London: JOHN CHURCHILL, 1853 to 1860, 8vo., pp. 1506.

THIS work has been completed by the publication of the 10th Part, the predecessors to which bore the respective dates of '53, '54, (2) '55, '56, '57, '58, (2) and '59. We postponed all reference to it in our previous Numbers, being anxious to speak of it as a complete and finished work. We are glad that we are now able to do so, and to bring to the notice of our readers a book of reference, which must stand first of its class in the department to which it belongs; a work, too, of which a great and confessed want existed for many years.

We have copied, *in extenso*, the lengthy title of this admirable work, because it will be sufficiently explanatory of the wide range of Medical and General Science which its pages embrace; and it is with no little pleasure that we congratulate the author on the completion of a work, in the laborious compilation of which 20 years were occupied, whilst its publication extended over 8 years.

Dr. Mayne's Lexicon holds in its departmentthe same position that "Copland's Medical Dictionary" and "Todd's Cyclopædia of Anatomy and Physiology" occupy in theirs: and, like them, has far outrun the limits of time originally intended for publication. But, at length, we welcome it as a goodly volume of upwards of 1500 pages.

The progress of Science in the last seven years has been so rapid that it has been found requisite to add a lengthened Appendix to the work, and with this and a suitable preface to the whole, as well as a brief dissertation on scientific nomenclature, the author concludes this most valuable addition to medical literature.

Of a work essentially without argument and professedly compiled from many sources, the Reviewer can give no more just opinion than that which his reader may form by perusing such extracts as may show at once the scope and style of the work under notice. We therefore allow Dr. Mayne's work to assert its own claims by making from it a few extracts, which may be taken as a fair sample of the whole.

From these it will be seen that the *Expository Lexicon* is not a mere *Word Book* such as an inexperienced student might require, but a Dictionary containing much valuable descriptive matter in the several departments of Science included under its voluminous title.

We select at random examples of explanations, both of a general character and of a purely medical nature, and from these the value of the volume before us may be inferred.

Some of our quotations will also show that Dr. Mayne has not neglected to afford information upon reputed remedies and wonder-working cures of ancient and modern date; and, that the collateral branches of our own art are dealt with as fully and judiciously as those in which we are specially interested.

To all the terms explained, are appended (as promised in the Title) the analogous and synonomous words used in the English and other languages. We need not dwell upon the value of this information.

In exemplification of the pains bestowed by the author, we observe that we have some *fifty thousand* terms explained in passages varying from 1 to 50 lines in length; explanations involving frequently the introduction and declination of words in three or four different languages; references to Acts of Parliament, general History, Scientific nomenclature in *nearly forty different branches*, and in all these departments of information displaying a method of arrangement and conciseness in expression, which is so hard to be attained, and so desirable in an Expository Lexicon. To these may be added the careful discussion of the limits of application and full force of meaning of each special term named.

Under the letter A upwards of 3,400 terms are explained, we subjoin one or two of interest—

Apo'thecary. (Ἀποθήκη, a repository, shop, or store.) *Med.* The word *Apotheca* was first received, it is believed into the medical language of the continent, as indicating a shop, warehouse, or cellar where medicines, simple and compound, were prepared and kept for sale, from whence the possessors of these shops came to be called *Apothecarii;* although previously the name *Apotheca* signified a wine-cellar. Its original signification was simply a store, magazine, or warehouse of any kind, and the proprietors of such were styled *Apothecarii*, without particular reference to the *Pigmentarii* (sellers of paints), *Seplasiarii* (sellers of powders and ointments), *Pharmacopolæ* (quacks, or mountebanks), or the *Medicamentarii* (sellers of medicines), of the Romans; all of which occupations in many instances are thriftily combined into one by the English chemist and druggist, and, in some, by the veritable Apothecary of the present day. The term, however, by act of parliament, 55 Geo. iii. *c.* 194, *s.* 5, specially belongs to certain compounders of medicines whether prescribed by themselves, or by any phyician licensed by the Faculty of Physic in London, or by either of the two Universities of Oxford and Cambridge, whose prescriptions they are bound to prepare when required, under a penalty of 5*l.* for the first offence; 10*l.* for the second, and forfeiture of their certificates, and incapability in future of exercising the art and mystery of an apothecary: and thus is preserved one marked feature of the apothecary, or mere mixer of drugs, of the past. After serving an apprenticeship of five years to one of their body, attending various enjoined classes for instruction, and undergoing examination as to their fitness, they are licensed by the Worshipful Apothecaries Company, not only to compound medicines, but to practice all the branches of the medical art. *Apŏthēcārius, ii,* m. Fr. anal. *apothicaire,* m. Germ. anal. *Apotheker,* m.

In the following *(published seven years ago)* may be found a very complete account of the use of castor oil plant leaves, as a galactagogue, an application of them not undeserving of attention in this country, where deficient secretion of milk is by no means uncommon, and where the leaves of the plant can be so easily obtained.

Bofarei'ra. *Bot., M. Med.* Name, in the language of the Cape de Verd Islands, for the *Ricinus communis* (the *white* species, so called to distinguish it from another, the *red* species, which appears to be only a variety of the white), used there, according to Dr. J. O. M'William, as galactagogue, not only to accelerate and increase the milk in the breasts of child-bearing women, but to produce milk in the breasts of women who are not child-bearing, or who even have not given birth to, or suckled a child for many years. A decoction is made by boiling a handful of the leaves in six or eight pints of spring water, and bathing the breasts for fifteen or twenty minutes; then part of the boiled leaves are thinly spread on the breasts, and allowed to remain till all moisture has been removed by evaporation and probably by absorption in some degree. This operation is repeated at short intervals, till milk flows on suction by the child. The leaves of the *red* species similarly employed, are said to be powerfully irritant and emmenagogue, producing an immediate, and often immoderate, flow of the menses. These varieties are called *Ricinus communis major* (or red) and *minor* (or white). See *Jatropha Curcas.*

It will be, doubtless, within the recollection of our readers that the use of this remedy has lately been strongly advocated by some French physicians, who extol its properties for the purpose named. We have before alluded to the various sources from which the author has drawn information, and we append an example involving explanations Botanical, Entomological and Geological. We may add that the examples given are selected merely to evidence certain points of excellence, and that we are not putting forward passages of exceptional merit, but rather such as illustrate the scope of the work upon which nothing can speak so well as the *ipsissima verba* of the author. These prove that not only to the physician is this volume one of *interest* (we had almost said of *necessity*), but also to those who are engaged in scientific, or general pursuits, into the conduct of which elaborate nomenclature enters extensively.

Interme'dius, *a, um.* (*Inter,* between; *mĕdius,* the middle.) *Bot.* Applied to the stipules which grow upon the stalk between the opposing leaves, but at the same height as in the *Cofea arabica. Entomol.* Applied by Kirby to that part of the wing situated between the costal *areola* and the internomedial nervure in dipterous insects, and which he terms *areola intermediaris. Geol.* Applied by Werner to those rocky formations which resemble the primordial by the nature rather than the structure of the rocks which compose them, but contain the remains or imprint of organised bodies. These are in some sort the residue of the primitive formation with first deposits of subsequent formations. Posterior to the catastrophies which gave origin to the first, they were not formed till after the appearance of certain organised beings upon the earth: interme'diary. Fr. anal. *intermédiaire,* adj. Germ. syn. *zwischenliegend,* part. adj. (p. 533.)

The actual use of special terms employed in one branch of Science is thus illustrated. (p. 516.)

Inadhæ'rens, *tis,* part. (*In,* priv.; *adhæreo,* to adhere or cling to.) *Bot.* Applied to every organ that is free, or does not fix itself to any other; to a calyx when perfectly detached from the ovary as in the *Labiatæ;* to an ovary when it has no adherence with the simple perianth, or calyx, and is not attached to the flower except at the base, as in the *Cruciferæ;* to a berry as in the *Vitis;* to the capsule, as in the *Silene;* to the *carcerula,* as in the *Rumex;* to the *dieresilis,* as in the *Lavatera arborea;* to the drupe, as in the *Prunus;* to the *regma,* as in the *Euphorbia,* when these organs are in the same condition: inadhe'rent. See *Diss. dir.* ii. *s.* vi. *t.* 5. Fr. anal. *inadhérent,* adj.

Among the reputed remedies alluded to and explained, we find (p. 1236) the celebrated Sympathetic Powder of Sir Kenelm Digby. We would gladly confirm the account given of its healing properties which *(if real)* deserve a more widely-spread fame than, we fear, they possess.

We quote at the same time a number of other phrases in

which the same adjective occurs, and the passages given will sufficiently demonstrate the various methods in which the word may be applied.

Having sufficiently explained the word sympathy, we next find the applications of the word *sympathetic*, wherein, in certain conjunctions, it forms a part of special terms in common use.

Sympathetic Actions. *Physiol.* See *Reflex Actions.*

Sympathe'tic Bu'bo. *Med., Surg.* Term for the inflammation of a gland arising from mere irritation, not from *syphilis*, nor *gonorrhœa*. Fr. anal. *bubon sympathétique.*

Sympathe'tic Ink. *Chem.* Name for certain solutions of chemical substances with which any writing is invisible till acted on by some re agent, as that of a weak solution of galls, which will not be visible till the paper be moistened with a solution of sulphate of iron; a writing with milk, lemon juice, most of the acids, etc., becomes legible by being held to the fire. Fr. syn. *encre sympathique.*

Sympathe'tic Nerves. *Anat.* Two nervous cords, or chains of ganglions descending from the base of the *cranium*, through the neck and thorax along the heads of the ribs, into the abdomen along the lumbar *vertebræ*, then into the *pelvis* close to the *sacrum*, down to the *coccyx*, and terminating in the *Ganglion impar;* they are otherwise termed the internal ganglionic nerves. See *Nervous System.* Fr. anal. *nerfs sympathiques.* Germ. syn. *die sympathischen Nerven.*

Sympathe'tic Ointment. *Pharm.* A name for the *Unguentum armarium.*

Sympathe'tic Powder. *Pharm.* Term for a powder made of vitriol effloresced by exposure to the sun, and, according to some, the *Usnea* of the skull; it was believed to heal wounds, if it only touched the blood which flowed from them; a book of such fancies in relation to this powder was written by Sir Kenelm Digby. Fr. anal. *poudre sympathique.*

If our readers have followed us through our remarks, we would feel unwilling to leave them in ignorance as to the method of operation of this marvel, and we therefore submit an extract, detailing the particulars of one trial of this *Sympathetic* Powder. We extract the following account by Sir Kenelm Digby, from his "*Late Discourse, touching the cure of wounds by the Powder of Sympathy, made in a Solemn Assembly of noble and learned men at Montpellier, in France.*"

"Mr. James Howel (well known in France by his writings and particularly by his *Drendologia*) coming by chance as two of his best friends were fighting in a duel, he did then endeavour to part them, and, putting himself between them, seized with his left hand upon the hilt of the sword of one of the combatants, while with his right hand he laid hold of the blade of the other; one of them roughly drawing the blade of his sword, cuts to the very bone the nerves, and muscles, and tendons of Mr. Howel's hand; and then the other,

disengaging his hilt, gave a cross blow on his adversary's head, which glanced towards his friend, who heaving up his sore hand to save the blow, he was wounded in the back of his hand, as he had been before within. They both ran to embrace him, and having searched his hurts, they bound up his hand with one of his garters to close the veins, which were cut, and bled abundantly. They brought him home, and sent for a surgeon. Four or five days after he came to my house, and prayed me to view his wounds—'For I understand,' said he, 'that you have extraordinary remedies on such occasions.'

"Sir Kenelm Digby undertakes the cure, and 'asks for anything that had the blood upon it,' so he sent for his garter, wherewith his hand was first bound; and, having called for a basin of water 'as if I would wash my hands, I took a handful of powder of vitriol which I had in my study, and presently dissolved it.'

"As soon as the bloody garter was brought me, I put it within the basin, but Mr. Howel started suddenly, as if he had found some strange alteration in himself. I asked him what he ailed—'I know not,' he said, 'what ails me, but I find that I feel no more pain; me thinks that a pleasing kind of freshness, as it were a wet cold napkin did spread over my hand, which hath taken away the inflammation that tormented me before.' I replied, 'Since you feel already so good an effect of my Medicament, I advise you cast away all your plasters, only keep the wound clean and in a moderate temper betwixt heat and cold.'

"This was presently reported to the Duke of Buckingham, and a little after to the King, who were both very curious to know the issue of the business, which was, that after dinner I took the garter out of the water, and put it to dry before a great fire; it was scarcely dry, when Mr. Howel's servant came running, and told me his master felt as much burning as ever he had done, if not more, for the heat was such, as if his hand was 'twixt coals of fire. Sir Kenelm bid the servant return to his master, with an assurance of speedy ease. 'Thereupon he went, and at the instant I did put again the garter into the water, thereupon he found his master without any pain at all. To be brief, there was no sense of pain afterwards, but within five or six days the wounds were cicatrized, and entirely healed.' The wise King James, 'after drolling with Sir Kenelm first about a magician and sorcerer,' gets the secret from the Knight, who informs us that he first learned it of a 'religious Carmelite that came from the Indies and Persia to Florence,' and that ultimately 'the Powder of Sympathy' which, as we have seen in the case of Mr. Howel, worked such wonders, 'remained not long in terms of a secret, but by degrees it became to be so divulged that now there is scarcely any country barber but knows it.'"

To what may be attributable the loss of knowledge which

has occurred in this respect in modern days, we are at a loss to comprehend ; but we certainly do not think the medicine in question is calculated to command much confidence now.

In concluding our notice of Dr. Mayne's work, we have to direct especial notice to the very able *dissertation* which, treating of scientific nomenclature, becomes a suitable introduction to the Expository Lexicon.

The first part of this alludes to certain terms, derived from the Greek and ending in *ūdēs, ūdē, ūdeus, ŭdæ, ŭdæ, ides, odes*, &c., to botanical terms, concluding with *ia*, as monandria, &c., to the Greek aspirate, &c., &c.

In the second part of the dissertation the following terms are specially considered, *Anasarca, Gastrocnemius, Psalloides, Emprosthotonos*, and its differential cognates, *Platysma myoides*, the adjectives *Acidum, Causticum, Ephemera, Narcotic, Antispasmodic*, &c., and the classes of Medicines to which these terms become distinctive names. Under the same section certain words terminating in *ine* are considered, as Fibrine, &c.; the value and force in pronunciation of the diphthongs and terminations of words, as *ismus, icus ;* and in conclusion some special terms come under notice, as *Lambdoidalis*, &c.

Like all of Mr. Churchill's publications, the Expository Lexicon is remarkable for its clear type and excellent paper.

The Causes and Treatment of Imperfect Digestion. By Arthur Leared, M.D., Oxon, M.R.I.A., &c., &c. Second Edition—London: John Churchill, 1861, Flscp., 8vo., pp. 218.

The first edition of this little volume was published in February 1860, and the present edition bears date just twelve months later. Dr. Leared's name is a guarantee that no mis-statements are to be found in the book, but he tells us, in his preface, that his aim has been to write little which his own experience had not verified, and that he has, therefore, not hesitated occasionally to express himself at variance with authority.

Upon first looking at this little work, and noticing its

neat appearance, its pocket size, its somewhat attractive title (for what civilized individual can be said to have a *perfect* digestion), and its dedication to Sir John Forbes, we feared that we should find a dubiousness about its character, which would end in our forming an unfavourable opinion of it.

Of late years many medical works have been written claiming to be thoroughly scientific and professional, and yet popularized to such a degree as evidently to show that the author had in view the general, rather than the professional, reader. To this class of works we have a decided objection. We hold that if a surgeon or physician feels that he has anything to say to his professional brethren, if he deems himself capable of enlightening them, of clearing up doubts, or throwing new light upon obscure subjects, he should be careful to address them strictly in the scientific language which is recognized as appertaining to the matter upon which he treats, and should especially avoid any appearance on his part of an assumption that his readers are incapable of understanding him.

There are, however, certain common disorders which, if not exactly originated, are most certainly aggravated and kept up, by injudicious conduct on the part of the sufferers; such conduct not proceeding from any wilful determination to pursue a certain course, but simply from a want of knowledge of the ill effects likely to result from its continuance. The many derangements of the stomach and bowels immediately offer themselves as candidates for admission into this class of disorders. At the outset they may be slight, and give but little trouble or uneasiness to the patients, but within a short period they may become so pronounced as to excite anxious attention, and all this time it may happen that they are dependent upon some error in diet or regimen, which would never suggest itself to the sufferers as in the least likely to have any influence whatever upon the said derangements.

That "a little knowledge is a dangerous thing" is a perfectly correct assertion with reference to medicine. Indeed we have a thorough horror of those well meaning people who, without possessing any medical knowledge whatever, are constantly obtruding their advice wherever they meet with a case of sickness. We allude to those who keep Graham's Domestic Medicine under their pillows, find Wesley's Primitive Physic by the side of their

Bible, and Buchan's Family Doctor on the same shelf as their pet Cookery book. We believe people of this kind give more trouble and annoyance to the practitioner than they can possibly be aware of, and we should rejoice if they could, one and all, be brought to see the error of their ways. But, nevertheless, we do hold that a knowledge of the laws of health, and such an acquaintance with physiology as to enable an individual to understand the processes incessantly going on in his body, and how readily they may be interfered with, altered and rendered morbid, is, by no means, "a dangerous thing," but, on the contrary, "devoutly to be wished." And as we cannot but consider that the physiology of digestion, its disturbances, and all that relates to food are legitimate objects of popularization, we think that Dr. Leared has, by no means, descended from the high estate of a scientific practitioner in publishing a short treatise on Imperfect Digestion.

But although we at once acknowledge the legitimacy of such a proceeding, we must just look at the mode in which Dr. Leared has performed his self-set task. The book opens with "A brief statement of the Physiology of Digestion." Here certain scientific terms are used, but only when unavoidable. That our estimate of the popular nature of Dr. Leared's book is correct might be shown by numerous passages, but we content ourselves with the following extracts :—

"The stomach is capable of great alterations in size. When distended, it resembles nothing so much as *the pouch of a bag-pipe.*"

"The food on passing out of the stomach by the pyloric opening, *so named from its gate-like valve*, enters the small intestine. The pulpy mass is now slowly propelled through this *narrow and tortuous tube, measuring about twenty-five feet in length.*"

"The pancreas *or sweetbread*, as it is termed in the lower animals."

We need not multiply these extracts. The italics are our own.

The second Chapter treats of the causes of Dyspepsia. And here we find such truisms as :—

"Appetite, or the natural desire for aliment, indicates that the waste of the body requires to be replenished."

"When the general health is impaired from any cause, digestion infallibly suffers."

"Those who dwell in large towns are most afflicted by dyspepsia."

"Many invalids feel their symptoms aggravated by changes of weather."

And the influences of season and temperature are thus illustrated—

"Some dyspeptics are always better in summer than in winter, others the reverse, while a great many tell us they suffer more in spring than at any other season!"

From which we presume it is to be inferred that autumn is an anti-dyspeptic season!

The *causes* may be summed up as follows; unsuitableness of the substances to be digested, and impairment of the apparatus which is concerned in digestion. It is but right to state that this unsuitableness and the various impairments are pointed out.

The symptoms of dyspepsia are next considered. We think that, popularly, they are well put. We have nothing to notice with reference to this chapter, except that Dr. Leared cannot agree with Dr. Brinton in his denial of the evolution of gas from the mucous membrane; and that Dr. Brinton's opinion that the sudden occurrence of flatus is due to gaseous expansion, consequent upon sudden relaxation of the gastric coats, is in Dr. Leared's view untenable, for he cannot admit the pressure which must be presupposed, nor believe that the forcible expulsatory efforts usually associated with flatus are consistent with a condition of temporary paralysis.

Chapter the fourth treats of Accidental Dyspepsia, and the next two chapters are devoted to Habitual Dyspepsia. Under the latter head we find the following Subdivisions. Slow Digestion; Undue Acidity in Digestion; Painful Digestion; Foul Digestion; and Impaired Digestion with Mental disturbance. Surely we need not say more to show the very popular nature of the work.

The seventh Chapter is headed "The treatment of Dyspepsia by general hygienic agents," and we acknowledge the judiciousness of Dr. Leared's remarks.

And here we think Dr. Leared's labours should have been brought to a close. But he proceeds to give a chapter on the treatment by medicines. Had he confined himself to his remarks upon magnesia and lime water, we would have not objected. But his error, according to our notion, is in destroying the thoroughly popular character of his work by entering into medical treatment at all. Bismuth, zinc, nitrate and oxide of silver, hydrocyanic acid, mercury, opium

and chloroform, are all discoursed upon, and we submit that they are by no means legitimate play-things for the dyspeptic. How much better it would have been had Dr. Leared contented himself with a general remark that the remedies for dyspepsia are numerous, and should always be taken under the direction of a medical man.

It is possible we may have mistaken the character of Dr. Leared's book, and that after all it may have been intended to find its place in the objectionable hybrid productions we have alluded to. What else does this mean ?—

"The patient should, however, be always instructed in what is really to be expected from medicines. He should be assured that their efficacy consists rather in rectifying morbid conditions, than in preventing their recurrence."

We regret that the introduction of this last chapter should have placed it out of our power to say that this little work supplies a desideratum, for we cannot acknowledge that it is *just* the book we should like to recommend to our dyspeptic patients.

PART III.

MEDICAL MISCELLANY.

No. 7.—*Symptoms of Poisoning from eating Common Honey.* By GEORGE BIDIE, M.B., Mysore Farm.

THE old saw says truly, that "one man's meat is another man's poison." Many have eaten honey and may do so with impunity, but yet it is well to know that it may sometimes produce symptoms very disagreeable, if not dangerous. I lately got some honey, from the Coorg jungle, in the joint of a bamboo. It looked clear and wholesome, and had the usual smell and taste. It was placed on the breakfast table, and on three successive mornings I partook of a little of it, about a tea spoonful on each occasion.

On the second and third day I felt a disagreeable itching over the whole body, but as the weather had suddenly become very cold, I thought the itching had in some way been caused by the change of temperature. On the night of the third day I awoke with intense headache, and a feeling of constriction about the forehead. The headache did not permit of much sleep, so getting up early I took a long walk, in hopes that exercise might relieve me of the pain. It got worse however, and returning to my quarters, I immediately went to bed and took a couple of purgative pills. I then had a feeling that some article of food had disagreed with me. Towards evening the headache left, but the constriction about the forehead remained. The itching had become worse, and I observed numerous red spots all over the body. On the fifth day I felt quite well, except that the itching was very troublesome. On the sixth I again took some of the honey at breakfast. Shortly afterwards I was purged, and my whole body became covered with an exanthematous eruption of prominent, irregular, red patches; most conspicuous on the face, back of the hands, and about the larger joints. The headache and constriction of forehead returned, and I suddenly became very sick and felt so prostrated in strength, that I could hardly walk a few yards to a couch. There was no desire to vomit, but a sickness and prostration so intense, that I could hardly move a limb, or even speak. This condition lasted for about three hours. I then had a short sleep, and awoke to find the

headache much relieved and the sickness quite gone. The eruption had partly disappeared. There were, however, intense thirst and a feeling of soreness in the throat, and my voice was quite hoarse. I took Acid. Sulph. in water to relieve the thirst, and some Sulph. Magnesia to clear out the bowels. I may mention that, although accustomed to eat the honey of the English hive-bee, it never produced any such effects. When a schoolboy too, I have engaged in many a raid on the nests of the humble-bee, and consumed the honey in quantities, that I should be afraid to mention now, without the slightest inconvenience. The eruption continued to appear and disappear and be troublesome for some time.

No. 8.—*Case of Abscess in the Liver.* By GEORGE MACKAY, M.D., &c., Madras Medical Service.

THE subject of this case, (an East Indian) applied to me for medical aid, giving the following history of himself. He had for some years undergone very great exposure in a malarious district, had suffered from intermittent fever and from delirium tremens, brought on by his intemperate habits. Two years previously to his applying to me, he had been under medical treatment for acute inflammation of the liver, ending in an abscess which had been opened, and he showed the cicatrix on the left side of the epigastrium. Since that time he had lived more temperately, but had not enjoyed good health. He had lately suffered from dysenteric symptoms, and said he had passed a large quantity of pus in his motions, which was followed by great relief. Still feeling uneasiness in the region of the liver, he applied for aid at the hospital, in a neighbouring station, where he had been salivated, and had a blister applied to the side. On my first visit the blister was still open, and prevented a thorough examination being made; but he complained much of pain in the region of the right lobe of the liver. His bowels were irregular, generally costive. Tongue furred, and pulse weak. When the blister was healed, the liver was found to be enlarged upwards, and to extend across the epigastrium towards the left side. The chief seat of pain was at its lower margin behind, pressure there caused acute pain, pressure in front also caused great pain at the same place behind. For three weeks he improved slowly but steadily,

then complained of increase of pain, with febrile symptoms, and dark colored scanty motions. These symptoms again passed off, and he felt better, though never free from pain. At the end of six weeks the pain again increased, and on a careful examination a slight bulging was detected, at the back of the right side, between the 9th and 10th ribs, which was the seat of pain. He now suffered from a troublesome cough, and gradually lost strength. Diarrhœa set in and soon passed into dysentery, accompanied with great tenesmus, and a constant desire to go to stool. The bulging in the side became gradually more distinct, and as it increased the pain became less acute. About three months and a half from the time I first saw the case, I detected a deep seated fluctuation, and made an incision through the integuments over the most prominent part of the swelling; this was kept open for five days, the fluctuation being then more distinct, a bistoury was passed to some depth, and about two ounces of pus escaped. From this time pus continued to be discharged daily in the quantity shown in the following table.

Days.	2nd.	3rd.	4th.	5th.	6th.	7th.	8th.	9th.	10th & 11th.	12th.	13th.	14th.	15th & 16th.	17th.	Total.
Discharge in Oz.....	21	10	10	20	14	4	5	2	15	10	6	11	26	8	156 Ounces.

Besides the above quantities which were measured, each poultice removed was covered with discharge, and from the last day above mentioned, till the patient's death, which occurred twelve days afterwards, it continued to pass from the opening in smaller quantity. The total quantity of purulent matter discharged could not have been less than one hundred and eighty ounces, at first the discharge was thick and healthy-looking, it afterwards became watery, very offensive, and mixed with shreds of slough. The patient gradually became weaker, the great relief from pain which he experienced gave him great hopes of recovery, till excessive exhaustion convinced him that there was no ground for it. The bowels became very irritable, his motions were passed involuntarily, and he gradually sank, having been altogether four months and twenty-two days under treatment.

Treatment.—This consisted at first of alteratives, laxatives when necessary, and he seemed to derive much benefit from Quinine and Potass. Iodidum, also from a combination

of Pil. Hydr., Scillæ, Digitalis and Hyoscyamus. Leeches were applied when the pain in the side increased, and they always gave relief, counter-irritation was kept up constantly over the liver. Anodynes were used freely and large poultices applied after the incision was made. The patient's strength was kept up as long as possible, by nourishing diet, tonics, and port wine.

Post-mortem.—THORAX.—The lower surface of the right lung was firmly adhering to the diaphragm. Heart and lungs healthy.

Abdomen.—Liver much enlarged; the right side of the large lobe was firmly adhering to the parieties of the cavity; the abscess in the liver was a large cavity, occupying about one-third of the entire size of the right lobe; the sides of the cavity were hard, cartilaginous and ulcerated; another small abscess, which had not burst, was found on the upper surface of the right lobe, but there was no trace whatever of a cicatrix in any other part of the organ, nor was any other portion of it adhering to the parieties; the rest of the organ presented a tolerably healthy appearance. The enlargement of the right lobe had pushed the left across the epigastrium, but the latter was itself quite healthy. The mucous membrane of the large intestine was studded with ulcers, most numerous towards the rectum; spleen enlarged; kidneys healthy.

Remarks.—At the commencement of this case I have mentioned that the patient in giving his history, stated that two years previously he had been treated for acute hepatitis, and had had an abscess opened, and showed the cicatrix of the wound, towards the left side of the epigastrium. At the *post-mortem* examination there was no trace whatever of any other abscess having ever existed in the liver, and no adhesion of that organ to the parieties of the abdomen, near where the first opening had been made, and there was no evidence even of that opening ever having penetrated the abdominal cavity at all. A medical subordinate who saw the patient at the time of his first illness, fully corroborated his statement, described the abscess as having been large, and having discharged a very large quantity of pus. It was impossible that this pus could have come from the abscess at the back of the right lobe, through the opening which had been made in front, at the left side of the epigastrium. It became an interesting question where

this discharge had come from, and the patient having, at that time, been in a public hospital, I obtained a copy of the record of his case. In this I found that he had been treated for hepatic abscess, that the symptoms were such as to indicate that pus was forming. He complained of pain in the epigastrium ; the left lobe of the liver was diagnosed to be large, and to be the seat of the disease; an incision was made through the skin and subjacent adipose tissue, at the left side of the epigastrium, and with a view to produce adhesion between the left lobe of the liver and the parieties of the abdomen, the wound was kept open, and dressed with irritating ointment.

This treatment was continued for nineteen days, it was then considered that adhesion had taken place, and that matter existed at this point in the left lobe ; a bistoury was used to deepen the incision, and thirty-two ounces of purulent matter flowed out rapidly. The record of the case goes on to state "the incision being free, admitted examination with the index finger, which could detect firm adhesion around the site of the wound." Twenty days after the opening was made, the size of the cavity in the left lobe is recorded, and the following measurements of it given, "the depth 3¼ inches, breadth across the lobe 5½ inches, length perpendicularly 5 inches." The wound gradually healed, and the patient was discharged cured in about two months and a half from the date of his admission.

This case was looked upon as one of recovery from serious hepatic abscess, and had the patient ultimately died of some other disease, had no *post-mortem* been made, the error would never have been discovered. I have thought it worthy of publication, as it shows how we may be deceived in such cases, and a more useful lesson is often taught by a discovered error in diagnosis, than by a successful case. It is very evident from the *post-mortem* appearances mentioned above, that no abscess had ever existed in the left lobe of the liver, nor had any adhesion of that portion of the organ to the parieties of the abdomen ever taken place. The patient is described as having suffered greatly from the irritating dressing applied to the wound in the epigastrium, with the view of causing adhesive inflammation between the left lobe of the liver and the abdominal parieties, its effect evidently was to cause suppuration, and the formation of an abscess in the parieties of the cavity. No doubt from the general symptoms, pus did exist at that time in the liver. The abscess

which ultimately proved fatal, had in all probability commenced to form; but the case strongly illustrates the difficulty of diagnosing the exact position of an hepatic abscess, and the propriety of withholding active local interference, till its position is unequivocally established, and fluctuation perceptible. I am very doubtful whether by any amount of irritation applied externally, we can trust to producing adhesion between the opposing surfaces of the peritoneum; certainly in this case it was most vigorously attempted, and most signally failed, while the means used to effect it added greatly at the time, to the patient's suffering.

No. 9.—*Case of Dysenteric Diarrhœa, passing into Dysentery with Ulceration of the Lower Bowel, and terminating fatally in Hepatic Abscess, complicated with latent Pericarditis; occupying altogether upwards of* 8 *months in its progress.* By Assistant Surgeon J. S. MORTON, M.D., B Troop, Madras Horse Artillery. *(Extracted from the Annual Medical Report for* 1859-60, *and communicated by the Principal Inspector General Medical Department.)*

GR. G. TUCKER, Æt. 30, a man of nervous temperament, spare make and temperate habits, leading a rather sedentary life as office clerk, was admitted in August 1858, at Secunderabad, with diarrhœa of a dysenteric character, from which he apparently recovered in about a week. Was re-admitted with similar symptoms, but more dysenteric in nature, in September of the same year, and again in October; and again in December, whilst on Field Service in the Deccan; when there was considerable and painful straining, and difficulty in retaining the stools for any length of time; with a good deal of pain and irritation in lower part of bowel, the rectum apparently, though no ulceration could be detected. He continued under treatment till 21st February 1859, during which period he did not progress satisfactorily towards recovery; and being thin, weak, and not in a fit state to accompany the troop on the long marches it was about to make, he was sent into Hingolee along with some other sick under charge of the Apothecary, where he remained till the troop passed through on its way to Jaulnah on 10th March; when having considerably improv-

ed in health, and feeling (as he said) quite well again, he joined and accompanied the troop to this station. Here, though still rather weak, and suffering from irregular and irritable bowels at times, he remained at his duty until the 14th April, when he was admitted into hospital under the head of "Chronic Hepatitis" with the following symptoms.

General appearance thin and weak; looked ill and uneasy, with an anxious, hollow, pale face; dull aching pain of two or three days' duration in the posterior and lateral hepatic region, somewhat increased by percussion and pressure; slight fulness of right hypochondrium, and increased extent of dulness on percussion, extending from right nipple to near the crest of ilium; dull aching pain in right shoulder; slight heat of skin; occasional hectic flushes, followed by profuse cold sweats; countenance of a dusky hue, but no jaundice; pulse quick (120), small, irritable, and intermitting every five or six beats; manner irritable and querulous (he is naturally rather so); great disinclination to exert himself, feeling very faint after any exertion; appetite bad; tongue rather foul and inclined to dryness; bowels loose, the stools being frequent, thin, light brown feculence, contain no blood or pus, and stated to run from him without any straining; no pain in bowels; sleeps badly. In the notes of his case on admission I have remarked that these symptoms point to hepatic abscess, probably forming for some time past, and dependent on ulceration of the rectum, from symptoms of which he had suffered some time ago.

Whilst under treatment in hospital (from 14th to 24th April) the man got gradually worse, and the case advanced rapidly and, apparently, hopelessly, towards a fatal termination; the weakness and emaciation, diarrhœa, cold damp sweats, restlessness, disturbed, short, and unrefreshing sleep, anorexia and anxious hollow expression of countenance, all getting more marked; the pulse continuing rapid (gradually rising to 130), weak, and intermitting, and the respiration short and difficult towards the end of the case (attributed to pressure of the abscess upwards on the lung and general debility) until he gradually sunk, and died 10 days after admission. The decubitus was always on the back or *left* side (the latter generally), and towards the end of his illness he preferred sitting up, and kept the body bent forwards, whether lying or sitting, like a person with a fit of spasmodic asthma. He also complained of the throat feeling sore (which he attributed to a cold) and spoke in a hoarse, hollow,

feeble tone; there was slight cough now and then, but very little expectoration of frothy mucus, slightly tinged of a reddish yellow color. Some dull pain or uneasiness was felt in the epigastrium and lower front portion of the left hypochondrium over lower ribs, but no distinct pain or tenderness on pressure; vomiting occurred only once or twice; the ankles and feet were rather œdematous, attributed to obstructed portal circulation, or general debility. The tongue became cleaner and moister; no pus or matter resembling what would be expected to come from an hepatic abscess was passed by stool, vomiting, or expectoration; the lungs were resonant on percussion, and seemed healthy, though the space normally occupied by the right lung must have been considerably encroached upon by the enlarged liver. The heart's action was noted to be weak and irregular, but no pain was complained of in the cardiac region, or any where in the chest; stimuli, though freely administered, had little effect on the pulse, which kept rapid, feeble, and intermitting throughout, becoming thready and fluttering towards the close of the case. On the night before his death he was talking deliriously for some time.

The treatment consisted *locally* of cupping and a blister with fomentations and poultices to hepatic region; sinapisms over epigastrium and left hypochondrium; Tr. Iodine applied over the throat, and bandages to the feet and ankles.

Internally.—Tonics, sedatives and stimuli, as Nitro-muriatic Acid with Ginger, Taraxacum, Gentian, Morphia, and Quinine, Dilute Sulphuric Acid, Spts. Ammon. Aromat:—Pills composed of Dover's powder, Hyd. c̄ Creta, Ipecacuan, Gentian and Hyoscyamus, Dover's powder. The diet consisting of arrowroot with milk and wine, brandy and water; rice and bread puddings, and nourishing broths; but nothing appeared to do him much good.

Notes of Sectio-Cadaveris (9 hours after death). Body much emaciated; face of a dusky hue; ankles rather œdematous; chest resonant on right side as low as right nipple, on left side the præcordial or cardiac dulness is more extensive than it should be; percussion over rest of chest resonant; hepatic dulness extends from right nipple to crest of ilium, and transversely nearly to right ribs. There is considerable bulging of right hypochondrium, but no pointing or fluctuation.

Head and Neck not examined; no sign of disease there.

Chest.—On removing the sternum and cartilages the pericardial sac seemed larger than natural, and on being opened, was found to contain about 3 oz. of clear, recently effused serum, but no lymph—either as flocculi or membrane, and the heart itself was firm, and exhibited no apparent signs of disease, or products of inflammation in the shape of lymph; structure firm, size natural, cavities and valves healthy-looking; right side full of thick, dark, blood.

Lungs.—Right one pushed upwards by the liver, but crepitant and pretty healthy, no adhesions to any extent. Left one slightly displaced by pericardial effusion and mostly crepitant, part of both lungs congested and emitting a dark, dirty red fluid on firm pressure, like what is expectorated in an early hepatic abscess communicating with the lung. Light colored frothy mucus oozed from the nose whilst examining the chest. Large vessels and bronchi seem healthy.

Abdomen—Liver much enlarged, reaching vertically from 4th rib to crest of ilium, and transversely almost to the left ribs, displacing the stomach to the left. Whilst removing the sternum and ribs, an accidental puncture or rupture, opened a large hepatic abscess in the front, lateral, and upper portion of right lobe, from which 2½ pints of thick, well formed, cream-colored or light, straw yellow, pus escaped. No regular cyst lined the abscess, and no opening could be found into either chest, stomach, bowel, or cavity of abdomen.

Right lobe of a dark mottled color, very friable. Left lobe of a light mottled color and firm.

Stomach and Intestines—Pale, blanched, and attenuated throughout, except that the lower part of large bowel was internally of a dark purplish red color, in patches; but no perforation or marked ulceration was seen.

Other organs presented nothing worthy of notice.

Remarks.—This was a case of well marked hepatic abscess, apparently quickly developed, and running its course rapidly, but it had probably been forming for some time (since the end of 1858), although no pain was ever complained of in the hepatic region until two days before his last admission (14th April 1859). The usual symptoms characteristic of hepatic abscess, such as dull heavy pain in liver and shoulder, gradual emaciation and debility, lassitude, derangement of digestive organs, profuse cold sweats, dusky

or sallow hue of countenance, depression of spirits and apprehensive manner, were all well marked; but the chief point of interest in the case was, that from some of the symtoms during life, and the pericardial effusion found after death, there appeared to co-exist a low form of, or latent, pericarditis, the symptoms of which were not well marked, and merged in, or masked by, the more prominent hepatic symptoms; and that some of the most prominent symptoms of these might be attributable, on analysis, to either the hepatic or cardiac affection. Thus to the *former* might be attributed, emaciation, debility, langour, disinclination to exertion and recumbent position, and dyspnœa (from the liver encroaching on and compressing the right lung), sense of weight and uneasiness in right hypochondrium, epigastrium and left hypochondrium, also (from congestion or inflammation (asthenic) of left lobe of liver) weak frequent pulse, cold sweats, dusky sallow hue of skin, anxious manner and expression, weak husky voice, disinclination for food, troubled sleep, œdema of ankles and feet, slight cough, loose irritable bowels, irregular action of the heart (from great debility) and typhoid delirium. Whilst to the *latter* (latent pericarditis) might be also attributable a feeling of debility and langour, disinclination to exertion with faintness after it, disinclination to lie down, dyspnœa, sense of weight and uneasiness in left hypochrondrium, epigastrium, and also right hypochrondrium (as is sometimes observed in congestion and enlargement of the liver consequent on pericarditis), weak, frequent and irregular action of the heart and pulse, painfully increased on exertion, cold sweats, dusky hue of face, anxious expression and irritable apprehensive manner, weak husky voice, disinclination for food, troubled sleep, œdema of the ankles, slight cough (an indirect symptom), loose bowels from the debility attendant, and delirium.

Again some of the symptoms are so complicated with both affections, that it is difficult to determine what share each had in their production, as cause and effect; especially in the feeble anæmic state in which the patient was. Thus the pressure upwards of the enlarged liver on the right lung, by diminishing its function, and thus throwing extra work on the already enfeebled heart, would tend to cause dyspnœa and passive pericardial effusion, leading to irregular and feeble action of that organ.

The position assumed by the patient (viz., on the left side or sitting up, and bent forwards) was peculiar and puzzling to account for during life, for as a person with hepatic inflamma-

tion generally prefers the decubitus on the right side, (for obvious reasons,) so in cardiac disease, where the heart or its sac are inflamed, and there is tenderness or pain of either of them, he is most easy on the right side also; the heart being then further removed from the ribs, and its systolic impulse against them less painfully felt; and there being also less liability to cough and palpitations: whereas in a low anæmic affection of the organ (whether merely nervous palpitation or latent pericarditis), without actual pain (as in this case), the position on the left side, is as easy, or easier, than on the right; and this appears to be the explanation in this case, the inclination to sit up being easily explained. It is difficult to say when the pericardial effusion commenced—it may have done so at, or before, admission; and the intermitting pulse maintained throughout the case favours this supposition; but it may have been exuded shortly before death, as it is known that sometimes, and especially in persons debilitated from chronic disease, these passive serous effusions, characteristic of only the lowest degree of inflammatory action, are copiously poured out in a very short space of time, so as to fill a serous cavity (as the pleura) in a few hours; and that latent or typhoid pericarditis often exists, in death from various chronic maladies, and is not discovered till after death, the symptoms being so undefined and insidious; and as it is then, little, if at all, amenable to treatment, its detection is practically of little value; it being less an agent in causing death, than an indication that the patient is already in a hopeless state. These remarks are applicable to the present case; for had it been discovered during life, little could have been done to alleviate or cure it, from the existence of hepatic abscess, diarrhœa, and great debility, the remedies used for which were also the most suitable for the low typhoid pericardial affection.

When the dyspnœa, tendency to syncope, fluttering irregular pulse, and disinclination to lie down, became so marked during the last day or so of the illness, it was supposed that the hepatic abscess had burst into the cavity of the chest; but the *post-mortem* proved this not to be the case.

Case 10.

A case of Abscess in lower lobe of Right Lung, closely simulating Hepatic Abscess, and terminating fatally.

This is an interesting case, but as it, like the one just described, extends over too long a time and occupies too

much space to transcribe entire, I can give only a brief sketch of its history, progress, and results.

Gunner G. Ladd, Æt. 25, a man of intemperate habits, phlegmatic temperament, sullen disposition, rather heavy make, and 6 years service, was admitted at Secunderabad with "Ebrietas" in April 1858, and in May following with the same; in June with "Acute Hepatitis," in August with "Feb. Quot. Int.," and in October with "Delirium Tremens." On 24th November 1858, shortly after leaving Secunderabad with the Troop to proceed on field service in the Deccan, he was again admitted with symptoms of acute hepatitis, and being too ill to go on with the troop, was left at Hingolie, on 29th November. Here he remained in hospital until the Troop passed through en route to Jaulnah, on 10th March 1859, when he was readmitted under the head of "Chronic Hepatitis," and brought up here in a dhooly; since when, up to the time of his death on 20th May, he remained very ill in hospital. The symptoms, from the date of his rejoining the troop (10th March) were as follows:—Gradually increasing emaciation and debility; feverish flushes followed by cold sweats; frequent and painful paroxysms of cough, with expectoration of large quantities of sputa, at first of a brick-red color mixed with bubbles of air, but lately of a more purulent character; a constant pain in upper, anterior and lateral part of right hypochondrium, increased by pressure, percussion, full inspiration, coughing (especially), and sometimes on motion; pain in right shoulder; skin sallow; expression anxious and hollow; manner irritable and petulant; tongue rather foul, but generally moist; appetite generally morbidly craving, but latterly very deficient; constant and obstinate diarrhœa, the stools being frequent, both night and day (the former especially) feculent, and generally of a light brown color, and frothy, but sometimes clay colored and frothy, containing no blood or mucus, though he sometimes had slight griping and straining; pulse regular throughout, at first about 80 with a nervous jerk, but easily compressed, gradually rising to 90, 100, and latterly to 120, and getting feebler, never hard or full. The paroxysms of cough were frequent and distressing, especially at night, increasing the pain in the side, breaking his rest (which was seldom good) and followed by profuse cold sweats, especially about the head and neck; decubitus on left side, in which position he almost always remained—as lying on the back or right side increased the pain and cough—ankles and feet œdema-

tous. Respiration got gradually embarrassed during the last fortnight or so, and latterly much so, with large moist râles in large bronchi on right side and trachea, as if an hepatic abscess were gradually discharging itself through the lung. During the last day of his illness he never rose from his cot, passing his stools in it,—partly unconsciously, and partly from inability to rise.

On auscultation and percussion of the chest and liver, the former was resonant as far as 7th rib, about 2 and ½ inches below the nipple (about its normal resonance), and from thence the hepatic dulness extended as far as a line about 1 inch above the umbilicus (about 5 inches, nearly normal), extending slightly below edge of ribs on both sides. The pain complained of was at the upper part of the liver, and where that organ and the lung approach each other; and on percussion here the resonance was heard to be more marked than it was elsewhere over the chest, or should be. Latterly this exaggerated resonance became more marked over the 6th and 7th ribs, giving the idea that the upper part of the liver had been gradually disintegrated, expectorated and hollowed out, so as to form a cavity; and large gurgling râles were sometimes audible. The anterior middle region of chest was also preternaturally resonant, as if from emphysema of the anterior margins of lungs, from the frequent fits of coughing.

The treatment was long and varied. Leeches, cupping, blisters, fomentations and poultices to the side, and *internally* tonics, as Mineral Acids with Quinâ, Taraxacum, Ginger, Gentian, Potas. Iodidum, &c., Saline Febrifuge Mixtures of Liq. Am. Acetas, Spts. Æther Nitric, Hyoscyamus, Nitre, Pot. Acet. &c. Dover's powder and opiate draughts, which were frequently required, as the only means whereby he could get any repose, from their checking for a time the paroxysms of cough, diarrhœa and restlessness. Good nourishing diet, with free use of stimuli when indicated.

At the post-mortem the following were the chief appearances found. Body extremely emaciated; both lungs emphysematous in front edges. *Left* lung shewed nothing particular; two upper lobes of *right lung* shrunk and small, but crepitant, and of a light grey mottled appearance, firmly adherent at their lower part to walls of chest; lower lobe detached downwards from the rest of the organ, and firmly adherent to the diaphragm, looking like a bulging upwards of the liver, being firm, dark, smooth and rounded; but on examination it proved to be the lower lobe of the right lung, firmly adher-

ent to the diaphragm and ribs at the side and behind, with most of its substance excavated into a large abscess, with a rough, irregular, wall of a dirty red color, what was left of it being firm, and so intimately united with the diaphragm, that they could not be separated : no opening in diaphragm ; about 1½ oz. of clear recently effused serum was found in the pericardium, but no lymph or trace of inflammatory action.

Heart rather small, but healthy throughout, with some small loose polypoid fibrinous clots in the auriculo-ventricular orifices.

Liver was found nearly normal in size and position, of a mottled appearance in some parts, and generally of a dull yellowish brown color ; at its upper convex part, just under the site of the pulmonary abscess : its texture was softer and more friable, as if affected by the vicinity of the abscess, and as if it would soon have become disintegrated, had the firm tendon of the diaphragm not intervened between them.

Stomach and bowels pale, anæmic, and attenuated, but presented nothing particular to account for the obstinate diarrhœa, which must have been colliquative, and from debility, the bowels no doubt being kept in an irritable state by imperfect digestion. About 3 oz. of a clear serum (similar to that found in the pericardium) was found in the pelvic cavity, having gravitated thither.

Remarks.—Here then we have a case of chronic abscess in lower lobe of right lung, resting on, and firmly adherent to, the diaphragm, over the upper convex part of the liver, and with the symptoms throughout so strongly resembling those of chronic abscess in the upper part of the liver, discharging its contents slowly through the lung, that it was impossible to distinguish between them during life, either from the constitutional or physical signs, as the character of the matter expectorated, (dirty reddish brown, gradually becoming more purulent) cough, cold sweats, gradual emaciation, diarrhœa, pain in right hypochondrium and shoulder, and the man's intemperate habits, all pointed to hepatic abscess ; whilst the lower lobe of the lung and upper part of liver were so firmly united, through the diaphragm, and incorporated as it were, that the difference between them could not be detected by percussion.

This case presents some features in common with the one of hepatic abscess previously given ; such as the diarrhœa, irritable manner, decubitus on left side, serous effusion in pericardium (no sympton of which appeared during life), and œdema of feet and ankles.

METEOROLOGICAL RESULTS *from the Madras Observatory Register for the month of July* 1861.

1861.	Barometer corrected and reduced to 32° Faht.	Corrected Thermometers. Observed Extremes. Highest.	Lowest.	Daily means. Dry.	Wet	General Direction of the Wind. A. M.	P. M.	Depth of Rain.	WEATHER.
	Ins.	°	°	°	°			Ins.	
1st Mon..	29·723	96·3	82·9	90·1	75·2	W.	W.	.....	Overcast.
2nd Tues.	·733	99·2	84·3	89·6	76·4	W.	W.S.W.	.....	Hazy and cloudy.
3rd Wed.	·715	101·1	82·4	88·5	77·7	W.	S.W.	.....	Cloudy.
4th Thurs.	·717	98·2	82·4	89·0	79·1	W.	S.W.	0·072	Light clouds, rain at night.
5th Fri...	·733	99·8	81·7	89·4	80·7	W.S.W.	S.S.W.	0·030	Do. do.
6th Sat...	·719	100·9	80·7	87·0	79·3	W.N.W.	W.S.W.	1·136	Do. do. [night.
7th Sun...	·709	92·3	76·6	84·8	79·3	W.N.W.	W.S.W.	0·856	Overcast, fine from sunset to mid-
8th Mon..	·688	89·7	75.4	84·0	77·6	W.N.W.	S.W.	.....	Overcast till sun set.
9th Tues..	·675	92·1	77·6	85·0	76·9	N.W.	W.	.....	Do. do.
10th Wed..	·648	94·2	77·4	85·9	77·7	W.	W.S.W.	.....	Overcast.
11th Thurs.	·628	89·5	80·4	84·0	77·2	N.N.W.	S.W.	.....	Do.
12th Fri....	·646	87·3	79·6	83·4	76·8	W.S.W.	W.	.....	Do.
13th Sat....	·650	91·8	80·4	84·2	75·5	W.	W.	0·016	Do.
14th Sun...	·690	92·4	78·2	85·8	74·6	W.	W.	.....	Do.
15th Mon..	·736	93·3	80·4	85·3	75·6	W.N.W.	W.N.W.	0·070	Do.
16th Tues..	·718	93·5	79·6	85·5	76·2	W.	W.	.....	Do.
17th Wed..	·680	93·3	81·4	86·7	76·1	W.	W.S.W.	.....	Do.
18th Thurs.	·692	95·2	80·6	87·9	75·6	W.	W.S.W.	·024	Do.
19th Fri....	·729	95·9	80·6	86·7	76·8	W.	W.	.....	Do.
20th Sat....	·756	98·0	80·4	88·2	78·9	W.	S.W.	·010	Nearly overcast.
21st Sun ..	·735	96·0	80·4	88·5	78·0	W.S.W.	W.S.W.	.....	Fine, cloudy night.
22nd Mon..	·725	90·6	81·2	86·5	75·9	W.S.W.	W.	.....	Overcast.
23rd Tues..	·724	95·3	82·9	89·0	77·7	W.N.W.	W.	.....	Chiefly overcast.
24th Wed..	·766	98·0	81·4	87·8	76·9	W.	W.S.W.	0·027	Showery, overcast at night.
25th Thurs.	·787	96·8	79·9	85·9	76·5	W.N.W.	S.S.W.	.....	Fine.
26th Fri....	·782	96·2	80·2	87·8	78·0	W.	S.	.....	Light clouds.
27th Sat....	·783	93·3	79·4	83·4	77·0	W.N.W.	S.	.....	Fine.
28th Sun...	·773	93.9	80·6	87·4	79·2	S.W.	S.S.W.	.....	Do.
29th Mon...	·789	96·1	80·3	87·1	77·2	W.S.W.	W.S.W.	.....	Cloudy, fine night.
30th Tues..	·742	94·1	78·2	86·8	79·4	S.W.	S·	.....	Fine.
31st Wed..	713	96·4	81·4	87·0	77·8	W.	S.	0·930	Light clouds, overcast at night.

METEOROLOGICAL RESULTS *from the Madras Observatory Register for th month of August* 1861.

1861.	Barometer corrected and reduced to 32° Fahr.	Corrected Thermometers. Observed Extremes. Highest.	Observed Extremes. Lowest.	Daily means. Dry.	Daily means. Wet.	General Direction of the Wind. A. M.	General Direction of the Wind. P. M.	Depth of Rain.	WEATHER.
	Ins.	°	°	°	°			Ins.	
1st Thurs.	29·722	92·5	77·6	86·2	78·4	Variable	S. S. W.	·422	Overcast.
2nd Fri ..	·766	90·4	75·6	82·0	77·8	W.	S. W.	.352	Do.
3rd Sat....	·741	86·5	75·2	80·5	77·4	W. S. W.	S. W.	.....	Overcast till night.
4th Sun...	·743	92·8	76·4	83·9	79·2	W.	S. W.	.....	Fine.
5th Mon..	·746	93·2	77·2	85·0	79·0	W.	S. S. E.	.....	Do.
6th Tues..	·752	91·7	80·0	85·4	79·1	S. S. W.	S. E.	.....	Light clouds, fine night.
7th Wed.	·746	90·3	79.6	85·5	80·0	S. S. E.	S.	0·095	Do. do.
8th Thurs.	.732	93·8	78·4	84·2	79·0	S. W.	W. S. W.	2·316	Fine day, overcast at night.
9th Fri....	·722	90·1	75·9	83·4	80·0	W.	S. S. W.	0·563	Overcast.
10th Sat...	·751	85·3	74·4	79·2	78·5	W.	S. S. W.	0·030	Do.
11th Sun...	·772	84·8	76·4	79·2	78·3	W.N.W.	W. S.W.	.....	Do.
12th Mon...	·771	86·9	77·0	80.5	78·2	W. S. W.	W. S. W.	0·018	Do.
13th Tues..	·727	91·4	76·4	83·4	79·9	W. S. W.	W.	·010	Do.
14th Wed..	·689	91·4	76 4	82·1	79·3	W.	W.N. W.	·230	Do.
15th Thurs	·707	89·0	76.4	79·6	78·4	W.	W.N. W.	·290	Do.
16th Fri....	·717	92·1	76·8	83·8	80·4	W.	S. W.	·004	Mostly clouded.
17th Sat....	·726	93.7	77·9	84·6	79·8	W. S. W.	W.	.....	Do.
18th Sun...	·685	91·5	78·5	83·5	79·7	W.N. W.	W.	·310	Do.
19th Mon..	·661	92·9	78·1	85·7	80·1	W.	W.S. W.	.....	Chiefly overcast.
20th Tues..	·710	94·0	78·4	86·6	80·7	W.	S. W.	.... ..	Heavy passing cloud.
21st Wed...	·753	95·6	78·2	84·8	79·2	W. S. W.	S. W.	1·764	Do. do.
22nd Thurs	·806	90·3	77·2	81·8	76·7	W. S. W.	W.	0·139	Overcast. [nigh
23rd Fri....	·797	93·3	76·9	84·2	77·6	W.N. W.	W.	0·123	Passing clouds, overcast
24th Sat....	·784	91·0	77·4	84·0	76·9	W.	W. S.W.	.....	Do. do.
25th Sun...	·807	89·4	78·4	82·5	77·0	W.	W.	.....	Overcast.
26th Mon..	·791	94·9	78·4	85·0	78·4	W. S. W.	S. W.	0·307	Partially fine, rain at 5 & 9 P.
27th Tues..	·783	92·2	79·1	84·1	78·0	W.	S. W.	.....	Chiefly overcast.
28th Wed..	·753	93·3	80·4	83·7	77·2	W.N.W.	Variable.	0·200	Do. rain at 8 P. M.
39th Thurs.	·740	91·9	77·9	81·5	76·7	W.N. W.	Variable.	0·710	Rain fell between 5½ & 10 P.
30th Fri. ...	·748	91·4	78·2	84·2	76·9	W. S. W.	W.	.....	Chiefly overcast.
31st Sat.....	·741	90·3	78·6	84·0	77·1	W.	W.N.W.	.....	Cloudy.

METEOROLOGICAL RESULTS *from the Madras Observatory Register, for the month of September* 1861.

1861.	Barometer corrected and reduced to 32° Fahr.	Corrected Thermometer. Observed Extremes. Highest.	Lowest.	Daily Means. Dry.	Wet.	General Direction of the Wind. A. M.	P. M.	Depth of Rain.	WEATHER.
	Ins.	°	°	°	°			Ins.	
st Sun...	29·707	93·1	79·4	85·9	77·6	W.N.W.	N.W.W. Miles.	.....	Cloudy, clear night.
nd Mon..	·701	94·2	80·6	87·0	77·4	W.	198	.....	Light clouds.
rd Tues..	·728	96·1	78·6	83·9	76·9	W. S. W.	194	.....	Do.
th Wed..	·716	96·1	79·4	83·9	77·8	W. S. W.	183	0·010	Rain about 10¼ P. M.
th Thurs.	·739	95·4	79·4	85·0	76·9	Variable.	174	.....	Wind chiefly, N. W. and S. E.
th Fri....	·759	95·6	79·4	85·1	77·9	Variable.	190	.....	Do. do. Clear night.
th Sat....	·753	93·1	79·4	85·5	78·2	S. W.	177	.....	Light clouds.
th Sun..	·761	93·3	79·7	85·8	77·6	W. S. W.	157	.....	Chiefly fine.
th Mon..	·746	93·6	78·4	86·8	78·5	W.	152	.....	Nearly fine.
th Tues..	·743	92·1	79·4	85·9	78·1	N. N. E.	128	.....	Do.
th Wed..	·772	92·3	79·7	86·4	79·3	S. S. E.	127	.....	Light clouds.
th Thurs.	·810	94·4	80·2	86·0	78·9	Variable.	146	.....	Wind chiefly, N. W. and S. E.
th Fri....	·814	95·4	78·4	85·5	79·2	N.	147	0·202	Rain from 8 to 11 P. M., gloomy.
th Sat....	·810	91·6	75·4	79·9	77·5	N. N. W.	125	0·513	Rain before 4 A. M. & between 3 4 P. M.
th Sun...	·767	87·5	74·6	80·0	77·1	N.	109	1·790	Rain between 7 and 10 p. m.
th Mon..	·749	86·4	75·4	81·3	78·8	N. N. W	123	.....	Overcast.
th Tues..	·754	90·6	78·0	84·1	80·7	N. N. W.	80	0·049	Do.
th Wed..	·809	91·2	77·4	80·1	79·2	W.	126	1·906	Rain from 1¼ to 6 P. M.
th Thurs.	·799	90·0	75·2	80·6	78·2	Variable.	95	1·235	Rain about 10 P. M.
th Fri....	·759	89·5	74·6	81·7	78·4	N. N. W.	136	0·305	Light clouds during day.
st Sat....	·749	89·5	75·9	84·0	78·6	N. W.	135	0·520	Day nearly fine, rain before 7 A. M.
nd Sun...	·803	85·9	78·3	79·8	77·6	W. S. W	137	0·385	Cloudy, till night.
rd Mon..	·801	86·2	76·4	77·0	76·6	S. W.	42	0·134	Overcast, rain from 2½ to 5½ P. M.
th Tues..	·791	89·5	75·9	79·3	76·5	N. W.	100	·690	Rain between 2 and 3 P. M.
th Wed..	·788	88·5	76·1	80·4	77·1	N. W.	92	·157	Overcast, rain about 5 P. M.
th Thurs	·812	85·9	75·2	76·7	74·6	W.N.W.	99	·140	Do. Light rain.
th Fri....	·806	86·3	75·4	80·4	77·1	N. W.	71	.....	Light clouds.
th Sat....	·757	86·4	76·4	83·3	78·2	W.N.W.	125	.....	Partly fine.
th Sun...	·721	88·7	77·4	83·6	78·5	W.S.W.	135	.....	Overcast
th Mon.	·770	91·8	78·0	85·4	79·1	W.	184	.....	Cloudy.

PART IV.

MEDICAL INTELLIGENCE.

REGULATION AFFECTING EXECUTIVE MEDICAL OFFICERS WHO HAVE ATTAINED THE AGE OF 55 YEARS.

G. O. G., No. 206, 18*th June* 1861.—The following General Order by His Excellency the Governor General of India in Council, is published :—

GENERAL ORDER BY HIS EXCELLENCY THE GOVERNOR GENERAL OF INDIA IN COUNCIL.

Fort William, the 4th June 1861.

No. 497 *of* 1861.—The following paragraphs of a Military letter from the Right Hon'ble the Secretary of State for India, No. 172, of the 24th April 1861, are published for general information :—

1. I have received and considered in Council your Excellency's separate despatches, Nos. 3 and 4, dated 21st January 1861, regarding the application to the Indian Medical Department of certain Clauses of the Royal Warrant of the 13th January 1860.

2. In my despatch, No. 326, dated 22nd August 1860, with reference to the objections which had been made to the 8th Clause of the Warrant under which all Medical Officers below the rank of Deputy Inspector General will be placed on the Retired List when they shall have obtained the age of 55 years, I expressed my willingness to consider any plan that your Government might suggest for reconciling the efficiency of the Public Service (which must be the primary object) with a fair consideration of the claims of the Medical Department.

3. The plan which appears to your Excellency best suited to protect the public interest and the claims, at the same time, of Medical Officers, is that of relaxing the rule embodied in the 8th Clause of the Warrant, in cases where superior Medical authorities certify the perfect competency and fitness of the Medical Officer, who has completed the age of 55 years without having obtained the rank of Deputy Inspector General.

4. I am willing to assent to the adoption of this plan in regard to the Medical Officers who entered the service prior to the promul-

gation of the Royal Warrant, provided that the perfect competency and fitness of the Medical Officers be, in all cases, certified by a Board consisting of two Medical Officers, one of whom must be an Inspector General or Deputy Inspector General, and the Commanding Officer, or Senior Civil Officer, under whom the Medical Officer may have been serving.

5. The certificate of efficiency granted by such a Board may hold good for three years, but in no case will a Medical Officer under the rank of Deputy Inspector General be permitted to remain on the effective list after he shall have attained the age of 60 years.

6. A Medical Officer who may be unable to obtain the Certificate of competency above referred to, will be placed on the Retired List, receiving, as recommended by Government, the rate of Pension next above that to which his period of service in India may entitle him, provided that he be not already entitled to retire on the higher rate, viz., £700 a year.

7. A similar course may be pursued with respect to Medical Officers employed on unprofessional duties on their attaining the age of 55 years.

8. Your General Order of the 26th December, giving effect to the instructions conveyed in my Despatch No. 397 of the 31st October 1860, regulating the amount of leave of absence allowed to reckon as service towards the qualification of the rank of Surgeon Major, is approved.

9. With reference to the modification of the Pension rules of the Medical Service, suggested by Dr. Forsyth, I have to inform you that the whole question of the re-organization of the Indian Medical Service is now under consideration, and that the determination of Her Majesty's Government thereon, will be communicated to you hereafter.

(Signed) R. J. H. BIRCH, Major General,
Secy. to the Govt. of India.

We would particularly solicit the attention of the Senior Medical Officers of the Indian Service to the above Dispatch, modifying Clause 8 of the Royal Warrant of 1860. It is not at all clear to us that the Secretary of State intends that officers who have attained the age of 55 years in the executive ranks, can subsequently be promoted to the grade of Deputy Inspector. Paras. 3, 4, 5 and 7 would seem to indicate that such promotion was not contemplated, and that permission is simply given to the superannuated, to remain for a fixed period upon the effective list. We imagine that a further reference upon this point will be necessary.

DEPUTY INSPECTORS GENERAL NOT ENTITLED TO EXEMPTION FROM INCOME-TAX ON ACCOUNT OF TENTAGE AND HORSE ALLOWANCE.

G. O. G., No 241, 19*th July* 1861.—No. 133.—Hospitals, Deputy Inspector of, not entitled to exemption from income-tax, on account of tentage and horse allowance, Act XXX. of 1860, Section CXXIX. Specific sums on account of the tentage and horse allowance of the Deputy Inspector of Hospitals not being included in the consolidated salary of that officer, he is not entitled to any exemption from income-tax on account thereof. (Financial Department Order, No. 5,875, dated 16th May 1861.)

PROMOTIONS IN HER MAJESTY'S INDIAN ARMY.

[From the *London Gazette* of Sept. 6.]

MEDICAL DEPARTMENT.

To be HONORARY PHYSICIANS to her Majesty.

John Forsyth, Principal Inspector-General of Hospitals, Bengal Medical Department.

Campbell Mackinnon, M.D., Inspector-General of Hospitals, Bengal Medical Department.

Edward Goodeve, M.D., Surgeon, Bengal Medical Department.

George Pearse, M.D., retired Principal Inspector-General of Hospitals, Madras Medical Department.

Duncan Macpherson, M.D., Inspector-General of Hospitals, Madras Medical Department.

Benjamin Proctor Rooke, M.D., Principal Inspector-General of Hospitals, Bombay Medical Department.

To be HONORARY SURGEONS to her Majesty.

Alexander Grant, Surgeon-Major, Bengal Medical Department.

John Campbell Brown, C.B., Deputy Inspector-General of Hospitals, Bengal Medical Department.

William Abbott Green, Deputy Inspector-General of Hospitals, Bengal Medical Department.

Robert Cole, Principal Inspector-General of Hospitals, Madras Medical Department.

Chas. Morehead, M.D., Surg.-Major, Bombay Medical Department.

Francis Short Arnott, M.D., C.B., Deputy Inspector-General of Hospitals, Bombay Medical Department.

The undermentioned retired Medical officers of her Majesty's Indian and Military Forces to have a step of honorary rank, under Clause 14, of the Royal Warrant of 13th January 1860 :—

Deputy Inspector-General of Hospitals, Edmund Walter Eyre, retired Madras Medical Department, to have the honorary rank of Inspector-General of Hospitals.

To have the Honorary Rank of Deputy Inspector-General of Hospitals.

Superintending Surgeon Alexander Davison, M.D., retired Bengal Medical Department.

Superintending Surgeon Charles Mackinnon, retired Bengal Medical Department.

Superintending Surgeon Donald Butter, retired Bengal Medical Department.

Superintending Surgeon John Greig, retired Bengal Medical Department.

Surgeon James Kellie, retired Madras Medical Department.

Surgeon William Evans, M.D., retired Madras Medical Department.

Surgeon Charles Kevin, retired Madras Medical Department.

Surgeon Alexander Shewan, retired Madras Medical Department.

Surgeon-Major John William Maillardet, retired Madras Medical Department.

Surgeon-Major Thomas White, retired Madras Medical Department.

Surgeon-Major Alexander Gibson, retired Bombay Medical Department.

In the list of Honorary Medical Officers to Her Majesty we observe that our Bengal friends have had apportioned to them the lion's share. Had the appointments been made in strict conformity with the relative numbers of Medical Officers in each Presidency, then Bengal would have had *five*, Madras *four*, and Bombay *three*. We think this would have been the fairest and most satisfactory distribution.

THE NEW SYDENHAM SOCIETY.

We announced in a former Number that the second edition of the works issued by the New Sydenham Society for the year 1859 was nearly exhausted, and we have since learnt that all the copies have been taken up, and that there has been such a large number of applications for these works, from new members, that the Council have determined upon

issuing a third edition, should a number of subscribers, sufficient to warrant such a step, enrol their names. Our last advices informed us that the list was daily augmenting, and we have but little doubt that the re-printing of the books is now actually going on, and that there is every prospect of those Madras subscribers who have registered their names receiving copies of these valuable works in due course. We are assured that a sufficient number of sets of the second year's issue, and of the first volume for 1861, to supply all the subscribers in the Presidency, are on the way from England, and we have no doubt they will soon be to hand.

The works already issued, and those in course of preparation for the Society, are of a very high character, and the Council is evidently determined to do its best to render the Institution in every way worthy of support. We trust that it is destined to pursue a long and useful course.

The following Works will be issued for the year 1861 :—

I.—A Year-book of Medicine and Surgery for 1860. (Now ready.)

II.—The First Volume of Casper's Forensic Medicine. (In the Press.)

III.—The Second and concluding Volume of Frerichs' Clinical Account of Diseases of the Liver. The Second Volume of this Work has not yet been published in the Original. By the courtesy of its Author and Publishers (who have supplied the Sheets as printed off) the Council will be enabled to have the translation ready almost simultaneously with the appearance of the Work itself.

IV.—A Volume of Selected Monographs, comprising—

1. Czermak on the Practical uses of the Laryngoscope *Numerous Woodcuts.*
2. Schrœder van der Kolk on Atrophy of the Brain. *Four Lithographs.*
3. Dusch on Diseases of the Cerebral Sinuses.
4. Esmarch on the uses of Cold in Surgical Practice.
6. Radicke's Papers on the Application of Statistics to Medical Enquiries.

V.—A Second Fasciculus of the Atlas of Portraits of Skin Diseases, comprising Plates from Hebra, illustrating—

Psoriasis Diffusa.
Ichthyosis.
Lupus Serpiginosus.
Alopecia Areata.

In addition to the above the following Works are also in preparation for the Society :—

Vogel and Neubauer on the Examination of the Urine : a Manual intended for the assistance of the practical Physician. With Litho-

graphs and Woodcuts. [The publication of this Work has been deferred on account of the expected appearance of a new and much emended Edition of the Original.]

A Year-book of Medicine and Surgery for 1861.

The Second Volume of Casper's Manual of Forensic Medicine.

Professor Donders on the Diseases of Accommodation of the Eye. With a preliminary Essay on the Dioptrics of the Eye, by the Author.

Smellie's Midwifery. Reprinted, with Notes and Preface, &c., bringing the Work up to the present standard of knowledge; by Professor Simpson of Edinburgh.

The Society now numbers upwards of 3,200 Members.

The following is a List of the Works already issued:—

Vol. I.—On Syphilis in Infants. By Paul Diday. Translated by Dr. Whitley.

„ II.—On the more Important Diseases of Women and Children, with other Papers, by Dr. Gooch. Reprinted; with a Prefatory Essay by Dr. Robert Ferguson. *Woodcuts.*

„ III.—Memoirs on Diphtheria: containing Memoirs by Bretonneau, Trousseau, Daviot, Guersant, Bouchut, &c. Selected and translated by Dr. R. H. Semple.

„ IV.—On the Minute Structure and Functions of the Spinal Cord. By Professor Schroeder van der Kolk:

On the Minute Structure and Functions of the Medulla Oblongata, and on the Proximate Cause and Rational Treatment of Epilepsy. By Professor Schroeder van der Kolk. Translated by Dr. W. D. Moore, of Dublin. In one volume; with *numerous Lithographs.*

„ V.—Experimental Researches on the Effects of Loss of Blood in Inducing Convulsions. By Drs. Kussmaul and Tenner. Translated by Dr. Bronner, of Bradford:

On the Process of Repair after Resection and Extirpation of Bones. By Dr. A. Wagner, of Berlin. Translated by Mr. T. Holmes; with *numerous Woodcuts.*

Professor Græfe's three Memoirs on Glaucoma, and on Iridectomy as a means of Treatment. Translated by Mr. T Windsor, of Manchester.

„ VI.—Memoirs on Abdominal Tumours and Intumescence. By Dr. Bright. Reprinted from the "*Guy's Hospital Reports,*" with a Preface by Dr. Barlow. *Numerous Woodcuts.*

VII.—A Clinical Account of Diseases of the Liver. By Professor Frerichs. Vol. I. Translated by Dr. Murchison; with *numerous Woodcuts and Coloured Lithograph.*

Vol. VIII.—A Year-book Medicine and Surgery for 1859. Edited by Dr. Harley, Dr. Handfield Jones, Mr. Hulke, Dr. Graily Hewitt, and Dr. Odling.

„ IX.—The first Fasciculus of an Atlas of Portraits of Skin Diseases; comprising Three Plates copied from those of Hebra, and illustrating—

Favus.
Tinea Tonsurans.
Lupus Exulcerans.

For information regarding subscription, &c., we must refer our readers to the advertisement in our last Number.

CHOLERA.

THE readers of Indian newspapers, during the last few months, must have become conscious that an awful pestilence has been sweeping over the length and breadth of the land. It appears to have affected the famine districts in the North-West Provinces with unexampled severity, striking down, not only the half-starved native laborer, but the well-fed inmates of jails, and the equally well-fed, and better-housed European soldier. Our own Presidency, for the most part, has suffered but little from this visitation, although the town and neighbourhood of Madras has lost a considerable proportion of the native population from it.

A Cholera Commission, we observe, has been appointed to investigate the circumstances attending the late wide spread epidemic.

The propriety of appointing such a Commission is, in our minds, a more than doubtful measure. We don't exactly see what a Commission is to do, until we have settled pretty clearly in our own minds what cholera is, and how it is propagated. Some persons *see* the cholera poison lurking in heaps of town refuse, or *smell* it in every unsavoury morsel which comes between the wind and their nobility. Others again declare that local nuisances have rather a salutary effect than otherwise on public health—attributing the rapid spread of epidemics to some occult, mysterious atmospheric phenomena. The members of the Cholera Commission have, no doubt, equally with the rest of mankind their pet theories, on these subjects, and the reconcilement of them, with the facts their investigations must bring to light, will, we imagine, be a hopeless task.

Some years since Mr. Balfour of the Madras Medical Service, collected a great amount of information, showing the localities exempted from cholera. So far as we are aware he did not attempt to theorise on the causes of exemption. His investigations went to prove that certain localities, and most of these were unimportant villages, out of the way of trunk roads, and uncontaminated by the stream of human intercourse, had never been visited by epidimic cholera, and that a few localities subjected to the influences of contagion, were notorious for their exemption from its epidemic visitations.

We think it is to be regretted that the line of investigation here indicated, has not been followed up with more perseverance, because we are of opinion that it is the only method of proceeding, calculated to throw any light upon the true nature of the cholera poison, and the conditions under which it attains the virulence, such as the unhappy experience of the last few months, has made us familiar with.

It must be obvious to all, that the "exempted localities," possess some peculiarity unfitting them to develope the cholera germs. Whether this peculiarity is to be found in the soil, water, elevation, climate, or elsewhere, it is our business to discover, and by a strict process of induction to seek for the general laws which determine the limits of this terrible plague.

We would particularly direct the attention of observers to the investigation of the nature of the soil in localities where cholera is seldom met with, and where it is always to be found. We have been much struck of late years, with the *apparent* fact that cholera sweeps lightly over those military stations which are built upon a soil having *laterite* for a foundation, and that it falls heavily upon those stations or towns which stand upon *alluvial* deposits, or soil resulting from the decomposing of *trappean*, or *metamorphic* rocks. Amongst the former we would instance, the Military stations on the Western Coast, the town of Honore (which has never been visited by cholera), Palaveram, Rangoon, Moulmein, Amherst, and some other Burmese stations, and amongst the latter, the town of Madras, the alluvial valleys of the Ganges, of the Godavery and Kistna, the towns and districts of Bellary, Hyderabad, Mysore, Cuddapah, Salem, &c. Many other instances will doubtless occur to our readers, and we would beg those in-

terested in the inquiry to contribute the results of their investigations to the pages of this journal, simply observing that we want no theoretical speculations, but a simple record of any facts which can, in the remotest degree, throw a morsel of light upon the causes influencing the progress of Cholera. The patient and continued labours of intelligent observers must ultimately bring forth good fruit. The result may not be apparent in the life time of any of the present generation, but that Nature will ultimately yield up the secret, to her scientific seekers, we have no shadow of a doubt.

If the paths of future investigators are in any degree smoothened by the labours of the present generation, our share in the good work will have been accomplished.

OBITUARY NOTICES.

MERIDETH.—In London, in July last, Spencer Merideth, Esq., Assistant Surgeon, aged 27 years.

DAVIS.—At Madras, on 15th August, Assistant Apothecary George Davis.

Mr. Davis, and several members of his family residing in the same house, fell victims to the prevailing cholera Epidemic. His loss will be much felt, both by his superiors and the young men of the Junior department of the Medical College, who benefited by his instructions. Amongst the whole body of Medical subordinates we have never met with a more zealous, intelligent, and conscientious public servant, than the late Mr. Davis; and it is a melancholy pleasure, to be able to record this testimony to the worth of one who adorned the station in life into which it had pleased Providence to call him.

APPENDIX.

MEDICAL DIRECTORY FOR SOUTHERN INDIA.

For the Half Year commencing 1st October, 1861.

CIVIL DEPARTMENT.

I.

MADRAS MEDICAL COLLEGE.

PRINCIPAL.

JAMES SHAW, Esq., F.R.C.S.

PROFESSORS.

Arranged in order of their permanent appointment.

J. SHAW, Esq., F.R.C.S. ..... *Professor of Midwifery and Diseases of the Eye.*
J. E. MAYER, Esq ..... *Professor of Chemistry and Pharmacy.*
A. BLACKLOCK, Esq ..... *Professor of Medicine and Clinical Medicine.*
W. J. VAN-SOMEREN, Esq., M.D ..... *Acting Professor of Botany, Materia Medica, and Therapeutics.*
H. B. MONTGOMERY, Esq., A.B., M.D ..... *Professor of Botany, Materia Medica, and Therapeutics.* (Europe s. c.)
J. L. PAUL, Esq., A.M., M.D ..... *Professor of Surgery and Clinical Surgery.*
W. N. CHIPPERFIELD, Esq., ... *Professor of Anatomy and Physiology.*

ASSISTANTS IN THE SENIOR DEPARTMENT.

Mr. G. NORTON ..... *In Chemical Department.*
Mr. R. WILKINS ..... *Demonstrator of Anatomy and Curator of the Museum.*
Mr. J. J. WOOD ..... *In Botany and Materia Medica.*

Mr. J. JOBARD, *Librarian.*

M. JUGGERNAD, *Native Assistant.*

ASSISTANT IN THE JUNIOR DEPARTMENT.

Mr. R. BARROW ..... *In Materia Medica, Pharmacy, &c.*

MR. WATKINS, *English Teacher.*

II.

THE UNIVERSITY OF MADRAS.

THE FACULTY OF MEDICINE.

President.

J. SHAW, Esq., F.R.C.S.

Members.

A. J. ARBUTHNOT, Esq.
T. PYCROFT, Esq.
Col. C. A. BROWNE.
J. E. MAYER, Esq.
J. SANDERSON, Esq.
W. J. VAN-SOMEREN, Esq., M.D.
SAMUEL JESUDASEN.
W. MACLEAN, Esq., M.D. (*Eur. Fur.*)
G. W. FLYNN, Esq., M.D.

III.

CORONER OF MADRAS.

J. URQUHART, Esq., M.D.

DEPUTY CORONER OF MADRAS.

R. S. MAIR, Esq., M.D.

IV.

PORT AND MARINE SURGEON.

H. B. MONTGOMERY, Esq., M.D., *Eur. S. C.*
W. N. CHIPPERFIELD, Esq., *Actg.*

V.

CHEMICAL EXAMINER TO GOVERNMENT.

A. J. SCOTT, Esq., M.D.

VI.

EMIGRATION SURGEON.

W. J. VAN-SOMEREN, Esq., M.D.

VII.

MADRAS MINT, ASSAY DEPARTMENT.

C. J. SHAW, Esq., M.D., *Assay Master.*
A. J. SCOTT, Esq., M.D., *Assistant Assay Master.*

VIII.

CONSULTING PHYSICIAN MADRAS RAILWAY COMPANY.

J. SANDERSON, Esq.

IX.

SUPERINTENDENT OF VACCINATION DEPÔT.

J. SANDERSON, Esq.

XI.

THE MEDICAL REFEREES OF LIFE ASSURANCE SOCIETIES.

The Madras Equitable.....James Shaw, Esq.
Church of England.....James Shaw, Esq.,
The Albert, Medical, and General.....W. J. van-Someren, Esq., M.D.
Universal.....J. Sanderson, Esq.
Colonial.....James Shaw, Esq.

XII.

MEDICAL HOSPITALS AND DISPENSARIES, MADRAS.

General Hospital, Black Town Esplanade.	A. Blacklock, Esq., *Physician.* J. L. Paul, Esq., M.D., *Surgeon.* M. A. Doutre, *Apothecary.*
Eye Infirmary, Poonamallee Road.	James Shaw, Esq., *Superintendent.* Mr. T. B. Turnbull, *Apothecary.*
Civil Dispensary, General Hospital Street.	J. L. Paul, Esq., *Surgeon.* Mr. G. Fonsworth, *Apothecary.*
Native Infirmary and Idiot Asylum, Attapalium Road.	W. J. van-Someren, Esq., M.D., *Surg.* Mr. Abel Grove, *Apothecary.*
Leper Hospital, Attapalium Road.	W. J. van-Someren, Esq., M.D., *Surg.* Mr. J. A. Evers, *Apothecary.*
Triplicane Dispensary, Royapettah.	H. W. Porteous, Esq., *Surgeon.* Mr. G. A. Trutwein, *Apothecary.*
Fort Saint George Dispensary, St. Thomé Street, Fort.	H. B. Montgomery, Esq., M.D., *Surg.* (Eur. s. c.) W. N. Chipperfield, Esq., *Acting.* Mr. Dewsnap, *Apothecary.*
Chintadrepettah Dispensary, Chintadrepettah.	J. Sanderson, Esq., *Surgeon.* H. Porteous, Esq., *Acting.* Mr. J. Thomas, *Apothecary.*
Port and Marine Dispensary, Custom House.	H. B. Montgomery, Esq., M.D., *Surgeon.* (Eur. s. c.) W. N. Chipperfield, Esq., *Acting.* Mr. Stirling, *Apothecary.*
Lunatic Asylum, Kilpauk.	J. E. Mayer, Esq., *Surgeon.* S. Mason, *Resident Medical Officer.* Mr. Peck, *Apothecary.*
Lying-in-Hospital and Dispensary, Egmore.	W. Aitkin, Esq., M.D., *Superintendent.* Mr. Gorman, *Apothecary.*
Vepery Dispensary, Shoolay.	J. W. Mudge, Esq., M.D., *Surgeon.* Mr. Stephenson, *Apothecary.*
Free Church of Scotland Charitable Institution.	Paterson, Esq., M.D., *Surgeon.* Mr. Hereford, *Apothecary.*
Black Town Dispensary, Saulay Street.	Samuel Jesudasen, Esq., *Surgeon.* ————————, *Apothecary.*

XIII.

MEDICAL OFFICERS OF PUBLIC INSTITUTIONS.

Military Male Orphan Asylum	C. M. DUFF, Esq.
Do. Female do	J. W. MUDGE, Esq., M.D.
Powder Mills	J. W. MUDGE, Esq., M.D.
Gun Carriage Manufactory	J. W. MUDGE, Esq., M.D.
Civil Male and Female Orphan Asylum,	J. W. VAN-SOMEREN, Esq.
H. M. Jail	J. W. VAN-SOMEREN, Esq.
Penitentiary	WM. AITKEN, Esq., M.D.

XIV.

PHYSICIANS AND SURGEONS IN MADRAS.

AITKIN, WM., Esq., M.D	*Poonamallee Road.*
ANDY, PULNEY, Esq., M.D	*Black Town.*
BALFOUR, E. G., Esq	*Royal Hotel.*
BLACKLOCK, A., Esq	*General Hospital.*
CHIPPERFIELD, W. N., Esq	*Fort Saint George.*
COLE, R., Esq	———
CONRAN, GEORGE, Esq., M.D	*Pursewalkum.*
CORNISH, W. R., Esq	*The Luz.*
DUFF, C. M., Esq., M.D	*Nungumbaukum.*
FLYNN, G. W., Esq., M.D	*Mount Road.*
MAIR, R. S., Esq., M.D	*Poonamallee Road.*
MAYER, J. E., Esq	*Rundall's Road.*
MCKENNA, J. E., Esq., M.D	*Commander-in-Chief's Road.*
MONTGOMERY, H. B., Esq., M.D	Europe on leave.
MUDGE, J. W., Esq., M.D	*Pursewalkum.*
PAUL, J. L., Esq., M.D	*General Hospital.*
PORTEOUS, H. W., Esq	*Mowbray Road.*
SANDERSON, J., Esq	*With H. E. the Governor.*
SCOTT, A. J., Esq., M.D	*Mount Road.*
SHAW, G. J., Esq.,	*Shawfield, Egmore.*
SHAW, J., Esq., M.D	*Eye Infirmary, Poonamallee Road.*
URQUHART, J., Esq., M.D	*Poonamallee Road.*
VAN-SOMEREN, W. J., Esq., M.D	*Royapooram.*

XV.

DENTISTS.

CLARKE, S. G., Esq	*Pantheon Road.*
GROVES, J. P., Esq	———

XVI.

CHEMISTS AND DRUGGISTS.

BARRIE AND CO	*Vepery Dispensary, Poonamallee Road.*
DO. (BRANCH)	16, *Mount Road.*
BREITHAUPT, ROBERT	*Semboodoos Street.*
DEBEAUX AND CO	*Esplanade.*
FLYNN, G. W. AND CO	135, *Mount Road, Presidency Dispensary (late Government Dispensary.)*
GEILS, DONALD	*Popham's Broadway.*
LEE AND CO	10, *Do. do.*
LEFEBOUR	*Do. do.*
SCOTT AND CO	*Do. do.*

In the following pages the Titles of the Medical Officers of the Madras Army are thus indicated.

1 F.R.C.S., England.	6 L.R.C.S., Ireland.	11 L.A.C.
2 F.R.C.S., Edinburgh.	7 M.D.	12 L.M.
3 F.R.C.S., Ireland.	8 M.B.	13 Fac. Phy. Sur. Glas.
4 M.R.C.S., London.	9 F.R.C.P.	14 F.G.S.
5 L.R.C.S., Edinburgh.	10 M.R.C.P.	15 Grad. Med. and Surg. Madras Medical College.

† A.B. ++ A.M. +++ F.L.S.

* prefixed to an Officer's name indicates the possession of a Medal for War Service.

Nominal List of Medical Officers of Her Majesy's Indian Forces on the Establishment under the Presidency of Fort St. George, showing their Professional Titles, dates of Rank, and how employed.

No.	Names.	Professional Titles.	Date of Rank as Asst. Surgeon.	Date of Rank as Surgeon.	Date of Rank as Inspector General.	Nominal Service to 30th Sept. 1861. Y.	M.	D.	Corps or Department.	Station.
	Inspectors of General Hospitals.									
1	Robert Cole	4	8th May 1827	24th Sept. 1840	28th April 1861	34	4	23	Prin. Insp. Genl. Medl. Dept...	Madras.
	*Duncan Macpherson	7	18th do 1836	11th Dec. 1852	8th Jan. 1858	25	4	13		
	Deputy Inspectors General of Hospitals.									
	*John Templeman Maule	5	14th May 1825	25th May 1838	Depy. Inspector General. 8th Feb. 1851	36	4	17	Nagpore Force..	Kamptee.
	Henry Gibbon Graham	.....	3rd June	2nd Feb. 1841	18th June 1855	34	3	27	Pegu Division...	Rangoon.
5	Frederick Cooper	4-11	4th Aug.	17th Dec.	12th Feb. 1856	33	7	27	Northern Div...	Europe s. c.
	John McKenna	7	20th May	31st do	20th Oct. 1857	33	4	11	Presidency and Centre Div....	Madras.

List of Medical Officers of Her Majesty's Indian Forces—*(Continued.)*

No.	Names.	Professional Titles.	Date of Rank as Asst. Surgeon.	Date of Rank as Surgeon.	Date of Rank as Depy. Inspector General.	Nominal Service to 30th Sept. 1861. Y.	M.	D.	Corps or Department.	Station.
	Cornelius Clarke Linton...	4-12	9th Mar. 1829	29th Feb. 1844	15th April 1858	32	6	22	Mysore Div. and Malabar and Canara.....	Bangalore.
	*Wm. Gordon Davidson...	††-5	1st April	22nd April	7th May	32	6	0	Southern Div...	Trichinopoly.
	John Lovell	4	30th Aug.	3rd June 1845	11th July 1859	32	1	1	Ceded Districts.	Bellary.
10	John Forbes.....	10-4-12	24th do.	28th Feb. 1847	.....	31	1	17	Hyd. Sub. Force.	Secunderabad.

Surgeons Major.

					Surgeon Major.					
	*Henry Goodall.....	4	24th Aug. 1830	28th Feb. 1847	13th Jany. 1860	31	1	17	48th Regt. N. I.	Bangalore.
	Charles Irving Smith.....	10-4-11	15th May	29th do 1848	do	30	4	16	Actg. Depy. Insp. Genl. of Hospls. N. Division. ...	Vizagapatam.
	Colin Paterson.....	7	22nd Oct.	2nd June 1849	do	29	11	9	Garrison Surgn.	Bangalore.
	John Colin Campbell.....	5-4	15th Nov.	9th Aug.	do	29	10	15	Durbar Surgn...	Mysore—*Europe Fur. 6 months.*
15	*James Dorward.....	.....	12th Feb. 1832	31st do	do	29	7	16	Garrison Surgn.	Trichinopoly.
	John Emelius Mayer..... ..	4	26th Mar. 1833	28th Feb. 1850	do	28	6	5	Medical Storekeeper & Professor of Chemistry.....	Presidency.
	James Shaw.	1	19th May 1834	31st Jany. 1851	do	27	4	12	Supt. Eye Infy.	Madras.
	Robert Henry Rennick.....	4	21st Decr.	13th Feb.	do	26	9	10	38th Regt. N. I.	Vizagapatam.
	*William Mackenzie, C.B...	††-7	14th Jany. 1835	5th do	do	26	8	17	Hyd. Contgt.....	Monnabad.
20	*John Middlemass..	5	1st June	6th Jany. 1852	do	26	4	0	.....	Europe s. c.
	*Thomas Caverhill Jerdon.	4	11th Sept.	29th Feb.	do	26	0	19	11th Regt. N. I.	Thayetmyoo.
	Alexander Lorimer.	7-5	6th Feb. 1836	3rd Aug.	do	25	7	22	.....	Europe s. c.

	Edward Green Balfour.....	5-4	2nd June	31st Dec.	do	25	3	28	Medical Examiner.	Madras.
	James Sanderson.....	5	27th Oct.	15th Mar. 1853	do	24	11	5	Garrison Surgn.	Madras.
25	*John Henry Orr, C.B.....	.....	22nd Feb. 1837	17th July	do	24	6	7	Hyd. Contgt. ...	Hingolie.
	*John Andrew Reynolds ..	4	28th do	24th Nov.	do	24	6	0	Garrison Sugn..	Cannanore.
	William George Prichard..	7-12-5	4th April	15th Decr.	do	24	5	26	Staff Surgeon...	Rangoon.
	*Joseph Myres Jackson....	4	2nd June	1st Jany. 1854	do	24	3	28	Garrison Surgn.	Bellary.
	*Char. Geo. Edwin Ford...	1-12	29th Aug.	8th do	do	24	1	3	1st Bn. Arty.....	St. Thomas' Mt.
30	*Donald MacFarlane.....	7-9	11th Jany. 1838	14th Feb.	do	23	8	20	4th do	Secunderabad.
	Henry William Porteous...	5	10th Feb.	24th do	do	23	7	18	Surg. 4th Dist. Actg.Gar.Surgn.	Madras.
	John Kennedy.....	7-5	27th Mar.	29th Oct.	do	23	6	4	2nd Bn. Arty....	Kamptee.
	David Thomas Morton.....	4	7th do	29th do	do	23	6	4	.....	Europe s. c.
	*Wil. Campbell Maclean...	7	29th April.	9th Dec.	do	23	5	2	Surgn. 3rd Dist.	Europe Fur.
35	John Borlase Stevens	4-11	29th do	1st Jany. 1855	do	23	5	2	3rd Regt. L. I...	Cannanore.
	*Char. William Pickering..	4-11	21st Aug.	21st do	do	23	1	10	3rd M. E. Regt..	Jaulnah.
	*Henry Edward Hadwen...	4	26th Jany. 1839	16th Mar.	do	22	8	6	35th Regt. N. I.	Bellary.
	Benjamin Smith Chimmo..	4-12-11	29th Mar.	10th April	do	22	6	22	....	Europe s. c.
	James Cecil Burton.....	7-5	14th May	26th July	do	22	4	17	.....	Europe Fur.
40	*Charles Timmins.....	1-4-11	1st Sept.	10th Feb. 1856	do	22	0	29	Artillery.....	Thayetmyoo.
	Henry Smith.....	4-12	12th do	12th do	do	22	0	18	3rd Regt. L. C.	Bellary.
	Edward Samuel Tribe.....	4	26th Oct.	30th Mar.	do	21	11	6	.....	Europe s. c.
	Charles Barclay.....	.....	3rd Decr.	27th April	do	21	9	28	18th Regt. N. I.	Cannanore.
	Moses Rogers.....	4-11	3rd do	16th May	do	21	9	28	Horse Brigade...	Bangalore.
45	Charles David Currie.....	7-5	3rd Jany. 1840	28th Aug.	do	21	8	28	....	Europe s. c.
	James Lancaster Ranking..	4	6th do	18th Sept.	do	21	8	25	2nd Regt. E.L.I.	Trichinopoly.
	James Peterkin.....	7-4-11	6th do	28th Feb. 1857	do	21	8	25	....	Europe s. c.
	John Pringle.....	7-5-12	6th do	18th do	do	21	8	25	1st Madras Fus.	Bangalore.
	*William Johnston.....	7-5-4	6th do	28th Aug.	do	21	8	25	d. d. 25th Regiment N. I.....	Mercara.
50	Ambrose Blacklock.....	5	8th Feb.	1st Dec.	8th Feb. 1860	21	7	20	Phy. Gl. Hospl.	Madras.
	*John William Mudge.....	7-5	8th Mar.	25th Feb. 1858	8th Mar.	21	6	23	Surgn. 2d Dist..	Presidency.
	*William Wilson Rawes....	.....	14th April	29th June	14th April	21	5	26	4th Regt. L. C.	Kamptee.
	*John Andrew Horak.....	7-5.....	6th Sept.	23rd July	6th Sept.	21	0	24	12th Regt. N. I.	Masulipatam.
	James Mackintosh.	.....	22nd Dec.	5th Aug.	22nd Dec.	20	9	10	.....	Europe s. c.
55	John Kinloch Ogilvie.....	7	17th Feb. 1851	10th Aug. 1859	17th Feb. 1861	20	7	11	30th Regt. N. I.	Bellary.

List of Medical Officers of Her Majesty's Indian Forces—*(Continued.)*

No.	Names.	Professional Titles.	Date of Rank as Asst. Surgeon.	Date of Rank as Surgeon.	Nominal Service to 30th Sept. 1861. Y.	M.	D.	Corps or Department.	Station.
	Regimental and Staff Surgeons.								
	John Fitz Patrick	7-1-10-12	29th Dec. 1840	2nd Jany. 1859	20	9	3	.....	Europe Fur.
	William Scott	7-5	30th Jany. 1841	9th April	20	8	2	31st Regiment L. I.	Chicacole.
	*William Hewitt Seton Burn	4-12	17th Feb.	5th May	20	7	11	1st do L. C.	Bangalore.
	*Alexander Charles MacLeod	4	8th Mar.	26th Oct.	20	6	28	.....	Europe s. c.
60	Robert Rushbrook Sutleffe	4	8th do	19th Nov.	20	6	28	5th do N. I.	Berhampore.
	James Ratton	4-11	2nd April	30th do	20	5	28	36th do	Kurnool.
	*William Forrester	.....	1st May	30th do	20	5	0	51st do N. I.	Mangalore.
	Henry James Penny	1	3rd Oct.	30th do	19	11	28	2nd do L. C.	Secunderabad.
	Charles Murray Duff	7-5-12	4th Jany. 1842	2nd Jany. 1860	19	8	27	Acting Surg. 3d Dist.	Presidency.
65	Henry Young	4	8th do	19th Feb.	19	8	23	6th Regt. N. I.	French Rocks.
	Henry Thomas Webster Harper	4	30th do	1st Mar.	19	8	2	41st do	Arcot.
	Christopher Beadnell Craske	4-11	15th Feb.	2nd Sept.	19	7	0	10th do	Secunderabad.
	James Kirkpatrick	7-5	30th April	28th Dec.	19	3	1	Surg. to Commission.	Mysore.
	*Henry Carnegie	4	19th June	1st Jany. 1861	19	3	11	26th Regt. N. I.	Kamptee.
70	Robert Pilkington Linton	4-12-11	2nd Aug.	8th Feb.	19	1	29	34th do G. L. I.	Madras.
	Hugh Francis Clarke Cleghorn	7	10th do	21st do	19	1	20	Conservator of Forests	Europe s. c.
	Matthew Kane	††-7-12	20th do	1st Mar.	19	1	11	Dy. Assay Master	Bombay.
	*George Mackay	7-10-5-12	28th Dec.	1st do	18	9	4	23rd Regt. W. L. I.	Palaveram.
	Alexander Hunter	7-2-12	2nd Feb. 1843	14th April	18	7	26	Supt. of the School of Arts	Madras.
75	Hamlin Nott	4-10	12th do	28th May	18	7	16	50th Regt. N. I.	Bangalore.

Staff and Regimental Assistant Surgeons.

					No. and Rank in this grade.						
	Frederic Fletcher	5-12		4th April 1843	1st Class	1	18	5	26	27th Regt. N. I.	Cuddapah.
	James Hay Blackwell	5-12		27th Jany. 1844	do		17	8	5	49th do	Secunderabad.
	Andrew James Scott	7-5-12		1st March	do		17	7	0	Asst. Assay Master	Madras.
	William Wentworth Heude	7-5-12		25th do	do		17	6	7	Civil Surgeon	Nagpore.
80	John Colebrook	4-11		1st April	do		17	6	0		Europe s. c.
	William Williamson	5		16th do	do		17	5	14	Resy. Surgeon	Penang.
	George Smith	7-5		3rd Aug.	do		17	1	28	Residency Surgeon	Hyderabad. (*Eur. S. C.*)
	Walter Alexander Leslie	4-11		11th Feb.	do		16	7	17	Medical Officer	Coonoor.
	Frederick Lewis Clementson	4		20th Aug.	do		16	1	11	22nd Regt. N. I.	Vellore.
85	John Brett	7-††-11-12		12th Sept.	do	10	16	0	18	14th do	Bangalore.
	William Aitken	7-5-12		26th Jany. 1846	do		15	8	5	Supt. Lying-in-Hospl.	Madras.
	*Patrick Gerald FitzGerald	7-12-3		20th March	do		15	6	11	Sr. Staff Asst. Surg.	Palaveram.
	William Judson vanSomeren	7-5-12		7th April	do		15	5	23	Surgeon 1st District	Madras.
	James Boyd Fleming	7-5		17th do	do		15	5	13	Acting Residency Surgeon	Hyderabad.
90	*Duncan Mackenzie	5		5th May	do		15	4	26		Europe s.c.
	*George Bailie	7		19th do	do		15	4	22	19th Regt. N. I.	Secunderabad.
	Edward Dixon	4		3rd June	do		15	3	27	29th do	Kamptee.
	James Cowpar	5-12		20th Jany. 1848	do		13	8	11	Civil Asst. Surgeon	Singapore.
	Arthur Langford Trewman Cooke	4		9th March	do		13	6	22	4th Regt. N. I.	Madras.
95	*Lestock Wilson Stewart	4		28th May	do	20	13	4	4	Medical Officer	Ootacamund.
	John Robert Theobalds	4		20th Dec.	do		12	9	12	9th Regt. N. I.	Jaulnah.
	George Flower Trimnell	4-4		27th do	do		12	9	5	1st do	Hoosingabad.
	James Donaldson	7-5		20th Feb. 1849	do		12	7	18	46th do	Vizianagrum.
	Charles James Rogers	4		29th April	do		12	5	10	Medical Officer	Ootacamund.
100	*Edward John Waring	4-12		22nd June	do		12	3	8	Phy. to H. H. the Rajah of Travancore.	Trevandrum.
	*George Whittaker Walter	4-12		12th Oct.	do		11	11	19	Asst. Supt. Port Blair.	Europe s. c.
	John Liston Paul	7-5-††		20th Jany. 1850	do		11	8	11	Surgn. General Hospital	Madras.

List of Medical Officers of Her Majesty's Indian Forces—*(Continued.)*

No.	Names.	Professional Titles.	Date of Rank as Asst. Surgeon.	No. in Rank.	Nominal Service to 30th Sept. 1861. Y.	M.	D.	Corps or Department.	Station.
	John George Gibbs	4-12	20th Jany. 1850	1st Class.	11	8	11	15th Regt. N. I.	Trichinopoly.
	Henry Rowley Donaldson Marrett	4	16th Feb.	do	11	7	12	Zillah Surgeon	Salem. *(Eur. S.C.)*
105	John Wilson	4-11	9th March	do 30	11	6	12	Civil Assistant Surgeon	Jubbulpore.
	William Augustus Jacob	7-12-4	20th do	do	11	6	11		Europe s. c.
	John Miller	7-5-12	8th July	do	11	2	23		Europe s. c.
	John Chisholm	7-5	14th Aug.	do	11	1	27	47th Regt. N. I.	Secunderabad.
	Henry Robert Oswald	7-5-12	24th do	do	11	1	8	Commissioner Mysore	Shemoga.
110	*John Thomas Williams	4	20th Dec.	do	10	9	11		Europe s. c.
	Alexander Adam Renton	7-9-5-12	20th Jany. 1851	do	10	8	11	Civil Surgeon	Coimbatore.
	*John Anderson Cox	7-4	10th Feb.	do	10	7	18		Europe s. c.
	*James Edward Dickinson	4-11	10th Sept.	do	10	0	20	Civil Surgeon	Rangoon.
	*Colvin Smith	7-5	3rd Nov.	2nd Class.	9	10	27		Europe s. c.
115	*Edward D'Arcy Evezard	4	27th Jany. 1852	do 40	9	8	5	Zillah Surgeon	Masulipatam.
	*Francis Day	4-††††	26th Feb.	do	9	7	3	Civil Surgeon	Cochin.
	Charles Lee	4	11th Sept.	do	9	0	19	H. M. S. Ship "Coromandel"	
	*Howard B. Montgomery	7-6-†-3-8	20th Oct.	do	8	11	10	Garrison Assistant Surg.	Europe s. c.
	Joseph Marcus Joseph	7-9-10-4	20th Nov.	do	8	10	10	Civil Surgeon	Tranquebar.
120	Edward Somerset Cleveland	7-4-11	do	do	8	10	10	Civil Surg. Malabar	Calicut.
	William Henry Harris	4-11	13th Feb. 1853	do	8	7	0	43rd Regt. N. I.	Cuttack.
	*William Henry Rean	7-4	14th May	do	8	4	27	Civil Surgeon	Chicacole.
	Henry Thompson Shaw	4	10th Sept.	do	8	0	20	Jr. Staff Assistant Surgeon	Palaveram.
	*Alfred Sanderson	7-4	20th Oct.	do	7	11	10	1st Regt. Cavy. Hyd. Contgt	Bolarum.
125	Clarence Cooper	7-41-2-11	20th Nov.	do 50	7	10	10	Arty. & Details.	Labuan.

	James McDonald	5-12		14th Feb. 1854	do		7	7	14	Zillah Surgeon		Rajahmundry.
	*Samuel Jardine Wyndowe	4-7		24th March	do		7	6	7	Civil Duties		Nagpore Province.
	William Robert Cornish	4-12		1st April	do		7	6	0	Secy. Prin. Inspector General Medical Department		Madras.
	John Simm Morton	7-5		10th June	do		7	3	20	B Troop H. A		Jaulnah.
	Arden Hulme Beaman	4		do	do		7	3	20			Europe s. c.
130	Joseph Alfred Bean	7-4-11		do	do		7	3	20	Actg. Civil Surgeon		Mangalore.
	John Pearson Nash	7-4-12		20th do	do		7	3	10			Europe s. c.
	*Henry Critchley Brodrick	7-4-11		2nd Sept.	do		7	0	28	Residency Surgeon		Indore.
	George Stewart Watson Ogg	8-5-††		12th do	do		7	0	18	44th Regt. N. I		Madras.
	John Shortt	7-4-12		20th do	do	60	7	0	10	Civil Surgeon		Chingleput.
135	Donald Coleman McAllum	7-5-12		30th Dec.	do		6	9	2	Durbar Surgeon		Hyderabad.
	William Nathan Chipperfield	4-11		3rd Jany. 1855	do		6	8	28	Acting Garrison Assistant Surgeon		Fort St. George.
	William Pearl	4-11		24th do	do		6	8	8	Arty. Horse & Foot		Bellary.
	George Marr	7-5		do	do		6	8	8	Civil Surgeon		Moulmein.
	*William Doyle	3-10		do	do		6	8	8	Zillah Surgeon		Combaconum.
140	Edmund Eyre Lloyd	4		do	do		6	8	8	Civil Surgeon		Cocanada.
	*Thomas Lowe	4-11-12		do	do		6	8	8	Sappers and Miners		Dowlaishwarum.
	*Henry Webster	4-11-12		do	do		6	8	8	Civil Asst. Surgeon		Seonee. *(Eur. S.C.)*
	James Augustus Foy	4-12		do	do		6	8	8	Ganjam and Orissa Sebundies		Russelcondah.
	*Michael Cudmore Furnell	4		7th Feb.	do	70	6	7	21	Zillah Surgeon		Tellicherry.
145	*George Alexander Burn	7-5-12		30th May.	do		6	4	2	Hyd. Contingent		Hingolie.
	Thomas Croudace	4-11		4th Aug.	do		6	1	27	Civil Surgeon		Guntoor.
	Henry Joseph Herschel Griesbach	7-4-12-11		do	do		6	1	27	24th Regiment N. I. Details and Civil Establishment		Vizianagrum.
	Benjamin Hooke	4		do	do		6	1	27			Tavoy.
150	Robert Dempster	4-12		do	do		6	1	25	39th Regt. N. I		Trichinopoly.
	John Houston	7-5		do	do		6	1	25	Asst. Gar. Surgeon		Bangalore.
	*Henry Elmsley Busteed	4		do	do		6	1	27	Civil Surgeon		Cuddalore.
	Henry Crocker	7-12-4		do	do		6	1	27	Acting do		Salem.
	Richard Arnold	4-11		do	do		6	1	27	Eur. Inf. Depot		Arcot.
155	*Hunter Adam	5		do	do	80	6	1	27	Zillah Surgeon		Nellore.
	*William Henry Morgan	4		do	do		6	1	27	17th Regt. N. I		Palamcotta.

List of Medical Officers of Her Majesty's Indian Forces—*(Continued.)*

No.	Names.	Professional Titles.	Date of Rank as Asst. Surgeon.	No. in Rank.	Nominal Service to 30th Sept. 1861. Y.	M.	D.	Corps or Department.	Station.
	Josiah Dashwood Gillies	7-4-12	7th Nov. 1855	2nd Class ...	5	10	23	Zillah Surgeon	Tinnevelly.
	Dugald Campbell	7-5-12	21st do	do ...	5	10	9	51st Regt. N. I.	Mangalore.
	Henry King	†-8-12	11th Jany. 1856	do ...	5	8	20	Civil Asst. Surg.	Baitool.
160	Benjamin Williamson	8-5	38th do	do ...	5	8	2	Hyd. Contingent	Lingasagoor.
	James Thomas Fraser	8-4-11	20th Feby.	do ...	5	7	18	Artillery	Singapore.
	*George Bidie	8-4-12	do	do ...	5	7	18	Cattle Farm	Hoonsoor.
	John Groscort Reed	7-4	do	do ...	5	7	18	Hyd. Contingent	Hingolee.
	John Henderson	7	do	do ...	5	7	18	33rd Regt. N. I.	Thayet Myoo.
165	Hamilton McEilheron Ross	7-4-12	do	do 90 ...	5	7	18	Resy. Surgeon	Travancore.
	Charles Thick Eves	4-11	do	do ...	5	7	18	Hyd. Contingent	Aurungabad.
	James Sadlier Ridings	4	do	do ...	5	7	18	20th Regt. N. I.	Penang.
	James Joseph Heffernan	6	do	do ..	5	7	18	Civil Surgeon	Shuaygheen.
	David William Trimnell	4-11	do	do ...	5	7	18	do	Nursingpoor.
170	Charles Abdy Andrews	4	25th April	do ...	5	5	6	Zillah Surgeon	Vizagapatam.
	John McNeale Donnelly	7	3rd July	do ...	5	2	28	Station	Mergui.
	James Keess	8-10-4-12	4th Aug.	do ...	5	1	27	52nd Regt. N. I.	Rangoon.
	*Robert Wilson	7-13-11	do	do ...	5	1	27	Civil Surgeon	Madura.
	Robert William Cockerill	4-12-11	do	do ...	5	1	27	37th Regt. Grs.	Vizianagrum.
175	*Charles Robertson	7	do	do 100 ...	5	1	27	42nd Regt. N. I.	Burmah.
	*William Charles Elliot	7-5	do	do ...	5	1	27	7th Regt. N. I.	Kamptee.
	Alexander Gamach	7-5	do	do ...	5	1	27	Civil Surgeon	Chittoor.
	Jacob Wilkins	7-4	do	do ...	5	1	27	28th Regt. N. I.	Samulcottah.
	*Alexander Boggs	4-12	29th Oct.	do ...	4	11	2	Hyderabad Contingent	Europe s. c.
180	*Thomas Gwynne Howell	4	12th Nov.	do ...	4	10	18	Zillah Surgeon	Cuddapah.
	*James Ross	8-5	29th Jany. 1857	do ...	4	8	3		Europe s. c.
	*Samuel Thomas Heard	7-5-12	do	do ...	4	8	3		Europe s. c.
	*William Arnold Smith	7-4	do	do ...	4	8	3	16th Regt. N. I.	Hurryhur.
	*William Frederick deFabeck	4	do	do ...	4	8	3	Civil Surgeon	Kurnool.

185	*George Edward Whitton	8-6-12-†	do	do	110	4	8	3	C Troop H. Arty.	Bangalore.
	*Thomas Beaumont	7-6	do	do		4	8	3	In Medical charge 3rd Regt. Cent. India Horse	Goonah.
	*William Pierce Kelly	6	9th June	do		4	3	21	45th Regt. N. I.	Quilon.
	William Richard Grylls	7-4-12	4th Aug.	do		4	1	27	Acting Civil Surgeon.	Seonee.
	*James Thomas Doyle	3	10th Dec.	do		3	9	21	32nd Regt. N. I.	Burmah.
190	Henry John Beach	4-11	27th Jany. 1858	do		3	8	5	Civil Duties	Nagpore.
	*John Massey Miller	5-7	13th April	do		3	5	17	Engineers Dept.	Kistna Annicut.
	William Farquhar	7-5	28th May	do		3	4	4	40th Regt. N. I.	Singapore.
	*John Law	7-4-11	do	do		3	4	4	d. d. Nagpore Force.	Nagpore.
	George Hamilton Alexander	7-5-12	do	do		3	4	4		Europe s. c.
195	Walter Fry	4	29th June	do	120	3	3	1	21st Regt. N. I.	Vellore.
	William John Busteed	5-12	23rd July	do		3	2	9		Europe s. c.
	William Farquhar Davis	7-4-12-11	do	do		3	2	9		Europe s. c.
	Samuel Rule	7-4	do	do		3	2	9	Actg. Zillah Surgn.	Tellicherry.
	James McDonald Houston	7-4	do	do		3	2	9	Medl. Charge Engineer Department	Upper Godavery.
200	James Welsh	4-12	do	do		3	2	9		Europe s. c.
	William Rowland Roberts	7-14	do	do		3	2	9	Dept. of Depy. Insp. Genl. Nag. Force.	Kamptee.
	John Murray	7-5-12	do	do		3	2	9		Europe s. c.
	John Bilderbeck.	15-4-12	10th Feb. 1859	do		2	7	18	Artillery	Cannanore.
	Peter William Marriott	4-11	do	do		2	7	18		Europe s. c.
205	Robert Edmund Pearse	4	do	do	130	2	7	18		Europe s. c.
	George Dalziel Riddell	5	do	do		2	7	18	d. d. 3rd M. E. Regt.	Jaulnah.
	Æneas McLeod Ross	5	do	do		2	7	18	Zillah Surgn.	Honore.
	Joseph Dougall	5-12	do	do		2	7	18	Artillery	Vizagapatam.
	Benjamin Thomas Suffrein	4-12-11	27th July	do		2	2	5	Pegu Division	
210	Joseph Francis Barter	5-12	do	do		2	2	5	Under Depy. Insp. General	Nagpore.
	John FitzGerald	6	do	do		2	2	5	d. d. Nagpore Force.	Nagpore.
	Andrew Fergusson	7-5	do	do		2	2	5	d. d. Steamer "Dalhousie"	
	Hugh Griffith	4-12-11	do	do		2	2	5	d. d. 2nd E. L. I.	Trichinopoly.
	Francis Thomas Bayntun	4	26th Oct.	do		2	2	5		Europe s. c.

List of Medical Officers of Her Majesty's Indian Forces—*(Continued.)*

No.	Names.	Professional Titles.	Date of Rank as Asst. Surgeon.	No. in Rank.	Nominal Service to 30th Sept. 1861. Y.	M.	D.	Corps or Department.	Station.
215	George Williamson	7-5	20th Jany. 1860	2nd Class 140	1	11	5	Artillery.....	Secunderabad.
	Charles Robert Geo. Parker....	.....	do	do ...	1	8	12	Madras Fusiliers.....	Bangalore.
	Hugh Ronaldson Handyside....	.....	do	do ...	.....			1st Mad. Fusiliers....	Bangalore.
	Daniel Kearney	.....	do	do ...	.....			d. d. Artillery	Rangoon.
	Francis Orde Bigg Wither.....	4-11	25th do	do ...	.....			d. d. F. Troop H. A..	Bangalore.
220	Frederick Duckworth	7	1st Oct. 1861	do ...	.....			d. d. 1st Bn. Arty....	Mount.
	——			do ...					
	——			do ...					
	——			do ...					
	——			do ...					
225	——			do 150 ...					
	——			do ...					
	——			do ...					
	——			do ...					
	——			do ...					
230	——			do ...					
	——			do ...					
	——			do ...					
	——			do ...					
	——			do ...					
235	——			do 160 ...					
	——			do ...					
237	——			do 162 ...					

List of Medical Officers of Her Majesty's British Forces.

No.	Names.	Professional Titles.	Date of Commission.		Service to 30th Sept. 1861.	Corps or Department.	Station.
			Regimental.	Army.			
	Deputy Inspector General of H. M. Hospitals.						
1	George S. Beatson	M.D	.....	31st Dec. 1858	.....	.....	Bangalore Hd. Qrs.
	Staff and Regimental Surgeons.						
	Charles Bush Hearn		16th Nov. 1849	.....	.....	1st Royal Regt. ...	Secunderabad.
	Alexander Barclay	M.D.	13th April 1852	.....	.....	43rd Regiment ...	Fort St. George.
	Thomas Best	.....	23rd do 1859	13th April 1852	.....	68th do	Rangoon.
5	Huntley George Gordon	M.D.	22nd do 1853	.....	.....	69th do	Tonghoo.
	James Macbeth	M.D.	13th Dec.	12th Aug. 1853	.....	74th Highlanders ..	Bellary.
	Miah William Murphy	.....	3rd March 1854	.....	.....	91st Regiment ...	Kamptee.
	William Holmes Jephson	M.D.	12th Jan. 1855	.....	.....	1st Drag. Guards ..	Bangalore.
	T. Crawford	M.D.	9th Feb.	.....	.....	18th Royal Irish ...	Europe s. c.
10	G. Waterloo Pennington Sparrow	.....	6th July	.....	.....	60th Rifles ...	Wellington.
	James Kellie	M.D.	2nd Oct. 1857	.....	.....	17th Lancers ...	Secunderabad.
	William Sim Murray	M.B.	24th June 1859	.....	.....	66th Regiment ...	Cannanore.
	Staff and Regimental Assistant Surgeons						
	William Hemphill	M.D.	13th July 1858	14th July 1854	.....	60th Rifles ..	On leave to Europe
	David Cullen	M.D.	13th Nov. 1860	1st Sept	.....	17th Lancers ..	Secunderabad.
15	Robert Watson	.....	26th May	.....	.....	91st Regiment ...	Kamptee.
	John Wild Hulseberg	.....	14th Dec.	.....	.....	1st Royal Regiment..	Secunderabad.
	J. Watts	.....	.....	5th April 1855	.....	1st Drag. Guards ...	Bangalore.
	Richard Uniacke Cashman	M.D.	9th July. 1857	18th May	.....	Royal Artillery ...	Secunderabad.
	Samuel Fraser	.....	12th Oct. 1860	23rd July	.....	17th Lancers ...	do
20	S. Fuller	.....	.....	do	.....	do	do
	Clement Williams	.....	5th Jany 1855	.....	.....	68th Regiment ...	Rangoon.
	James Robert Crawford	.....	2nd April	.....	.....	69th do	Tonghoo.

List of Medical Officers of Her Majesty's British Forces—*(Continued.)*

No.	Names.	Professional Titles.	Date of Commission.		Service to 30th Sept. 1861.	Corps or Department.	Station.
			Regimental.	Army.			
	William Robert Burkitt	.....	9th April 1855	... .	.....	74th Highlanders ...	Bellary.
	James Macartney	.....	6th Oct.	.....	.....	60th Rifles ...	Wellington.
25	John James Henry	.....	28th Aug. 1857	18th Jany. 1856	.....	43rd Regiment ...	Depot Sur. Poona-mallee.
	Edward L. McSheehy	M.D.....	14th do	27th May	.....	1st Dragoon Guards.	
	Arthur Chester	.....	13th July 1858	1st Aug. 1857	.....	74th Highlanders ...	Bellary.
	Francis Madden	.....	13th do 1858	19th Oct.	.....	69th Regiment ..	Tonghoo.
	James Good	.....	3rd Nov.	30th do	.....	43rd do ...	Fort St. George.
30	John Henderson Whittaker.....	... .	6th do	do	.....	69th do ...	Tonghoo.
	Seth Sam	.....	12th Mar. 1859	9th Nov.	.....	.....	Europe s. c.
	Frederick Ffolliott	.....	1st Aug. 1857	.....	.....	18th Royal Irish ...	Secunderabad—absent on duty.
	William S. Oliver	M.D.....	15th Sept.	.....	.....	60th Rifles ...	
	Augustus Oliver Applin	.....	3rd Oct.	.....	.....	68th Regiment ...	Rangoon.
35	T. T. Gardiner	.....	10th July 1860	7th May 1858	.....	1st Royal Regt. ...	Secunderabad.
	John Henry Halked Tothill.....	.....	13th June 1859	22nd June	.....	18th Royal Irish ...	do
	Hugh M. Macbeth	.....	7th Sept. 1858	22nd do	.....	91st Regiment ...	Kamptee.
	Robert Gillespie	M.D.....	31st Dec.	1st Sept.	.....	74th Highlanders ...	Bellary.
	Mathew Lawrence White	.....	1st June 1859	22nd do	.....	1st Royal Regt. ...	Secunderabad.
40	James M'Creevey	M.D.....	31st Dec. 1858	.....	.....	66th Regiment ...	Cannanore.
	A. C. McTavish	.....	.....	12th Jany. 1859	.....	60th Rifles ...	Wellington.
	R. A. P. Grant	.....	26th Oct. 1860	13th June	.....	43rd Regiment ...	Fort St. George.
	C. Codrington	.....	28th do	do	.....	68th do ...	Rangoon.
	J. MacLean Marshall	.....	13th June 1859	.....	.....	91st do ...	Abst. on sick leave.
45	George Alexander Moorhead...	.....	5th Aug.	.....	.....	66th do ...	In Medl. Ch. Det. Malliapooram.
	William Orr	.....	4th do 1860	.....	.....	18th Royal Irish ...	

List of Veterinary Officers of Her Majesty's Indian Forces.

No.	Names.	Date of Commissions.	Corps or Stations.	Remarks.
	VETNY. SUGNS., 10.			
1	Ed. Boghurst Dawson...	28 June 1845	1st Light Cavalry	
	Joshia M. Cullimore ...	7 August 1848	.....	Australia s. c.
	*Thomas Aston ...	4 Dec.	.....	Europe s. c.
	Rowland Hill Usherwood Holloway ...	26 do. 1850	2d Light Cavalry	
5	James Thacker ...	29 do.	Horse Artillery....	
	Thomas Pritchard ...	2 Oct.	Body Guard ...	
	Daniel Cullimore ...	27 Dec. 1853	3d Light Cavalry.	
	Frederick George Shaw.	6 Feb. 1857	Rt. Depôt Oossoor.	
	George Western	25 April.	4th Light Cavalry.	
10	——			

Veterinary Officers of Her Majesty's British Forces.

1	Thomas John Williamson	5th Mar. 1855	Royal Artillery ...	Secunderabad.
	J. W. Callow ...	14th Dec. 1857	do ...	do
3	John Ferrier ...	17th July 1859	17th Lancers ...	do

Native Surgeons.

No.	Names.	Date of Rank.	Stations, &c.
1	C. Bauloo. ...	16 April 1852	Zillah of Trichinopoly.
	S. Jesudasen ...	do	Black Town—Madras. Municipal Commissioner.
	S. B. Kanagaroyen ...	20 May 1856	Pullachy Civil Dispensary.
	P. S. Mootoosawmy Moodlr.	do	Zillah of Combaconum.
5	Francis Appavoo ...	4 do 1857	Assistant Conservator of Forests.
	Moodeen Sheriff ...	5 do 1858	Civil Dispensary, Triplicane.
	M. Iyasawmy ...	do	do Cuddapah.
	I. Raujantheram ...	do	do Cuddalore.
	T. Ruthnum ...	do	do Nellore.
10	Y. Anthony ...	do	do Madura.
11	R. N. Manikum ...	12 do 1859	do Salem.

List of Medical Warrant Officers of Her Majesty's Indian Forces.

	APOTHECARIES, 45.			
1	Arthur Harris ...	4 Feb.	1831	d. d. Dept. of Depy. Inspr. Genl. of Hospls. Presy.
	George Haldwell ...	2 June	1832	Garrison of Bangalore.
	Samuel Mason ...	27 August	1833	Resident Medical Officer of the Lunatic Asylum.
	Henry Xavier ...	19 June	1836	Under the Comssr. in Mysore.
5	*P. A.* Mark Sterling ...	7 Feb.	1840	Port and Marine Surgeon's Dept.
	do David Scot Turner ...	2 Sept	1842	Garrison of Vizagapatam.
	do *Gustin Wilson ...	1 Nov.		Secunderabad.
	do Thomas Good ...	6 Feb.	1844	Attached to the Commissioner, Tenasserim Provinces.

P. A. signifies passed examination as Apothecary.

List of Medical Warrant Officers of H. M.'s Indian Forces—*(Continued.)*

No.	Names.	Date of Rank.	Stations, &c.
	APOTHECARIES.		
	P. A. *George Smith ...	27 May 1845	Garrison of Cannanore.
10	*do* Bartholomew Woutersz	24 Feb. 1848	Under the Commissioner in Mysore.
	do Amond Doutre ...	24 Sept.	General Hospital, Presidency.
	do John Mathews ..	12 June 1849	Under the Coltr. and Magistrate, Chingleput.
	do Robert Thompson ...	15 March	Kotagherry.
	do Thomas King ...	24 Dec.	Under the Comssr. in Nagpore.
15	*do* Joseph North ...	25 July 1851	Coltr.'s Establishment, Bellary.
	do Henry William King...	1 Nov.	Medical Stores, Presidency.
	do *Peter McIntyre ...	9 May 1845	Dept. of Depy. Inspector General of Hospitals, Malabar & Canara.
	do David Conwell ...	17 Nov.	d. d. Hospital at Trimulgherry, Secunderabad.
	do T. M. Francke ...	21 do	Cantonment of Kamptee.
20	*do* *George Fonsworth ...	do	d. d. Civil Dispy. Genl. Hospl.
	do William Barnes ...	22 May 1855	Mysore Commission.
	do Samuel Jones ...	15 June	Penitentiary, Madras.
	do *Robert Huffton ...	28 Nov.	Doing duty Female Asylum.
	do John Alcock ...	15 July	Medical Stores, Rangoon.
25	*do* *John Charlesworth ...	21 Oct.	Civil Establishment, Sircy.
	do George Dewsnap ...	15 May 1857	Garrison of Fort St. George.
	do George Wrightman ...	17 do	Under the Comssr. Mysore.
	do John Aitkins ...	do	Dept. of Depy. Inspr. Genl. of Hospitals, Ceded Districts.
	do John William Clark ...	27 April 1858	d. d. Civil Dispy., Raneepett.
30	*do* Abel Grove ...	do	Native Infirmary.
	do Frederick Huntley ...	9 July	Garrison of Trichinopoly.
	do George Macqueen ...	.....	Acting 31st Dec. 1858—Employed in the Nagpore Igr. Force.
	do Benjamin Henry Bond.	25 Feb. 1859	d. d. Dept. of Depy. Inspr. Genl. of Hospls. Presy.
	do John Cunningham ...	29 March	d. d. Government House.
35	*do* Joseph Swaris ...	16 Sept.	d. d. Dept. Depy. Inspr. Genl. of Hospitals, Northern Divn.—doing duty Masulipatan.
	do Christopher Oliver ...	20 do	Dept. of Depy. Inspr. General of Hospitals, Presy.
	Daniel Gillespie† ...	12 Oct.	Dept. of Depy. Inspr. Genl of Hos. Hyd. Sub. Force.
	do John Davall ...	14 Feb. 1860	d. d. Dept. Depy. Inspr. Genl. of Hospls. Mysore Division.
	do *John Tyrrell ...	27 July	d. d. Dept. of Depy. Inspr. Genl. of Hospitals, Presy.
40	*do* *Archibald Spiers ...	31 August	d. d. Dept. of Depy. Inspr. Genl. of Hospitals, Presy.
	do J. F. Rodgers ...	19 Dec. 1860	d. d. Itchapore.
	do Charles Evers ...	16 April 1861	d. d. Dept. of Depy. Inspr. Genl. of Hospitals, Southern Divn.

P A. signifies passed examination as Apothecary.
† Supernumerary.

List of Medical Warrant Officers of H. M.'s Indian Forces—*(Continued.)*

No.	Names.	Date of Rank.	Stations, &c.
	APOTHECARIES.		
	P. A. *Richard Barrow ...	3 May 1861	Asst. Junior Dept. of the Medical College.
	do Richard Quintin ...	do	Dept. of Depy. Inspr. Genl. of Hospitals, Nagpore Force.
45	*do* Thomas B. Turnbell....	23 do	Eye Infirmary.
	2ND APOTHECARIES, 32.		
1	*P. A.* Charles Doig. ...	25 August 1857	H. M. 17th Lancers.
	do George Honor ...	do	H. M. 1st King's Dragoon Guards.
	do *Henry C. Clarke ...	do	d. d. Seamen's Hospital and Civil Dispensary, Cocanada.
	do Frederick Pearl ...	do	69th Regiment of Foot.
5	*do* George Pereira ...	do	d. d. 1st Battalion Artillery.
	do Joseph Miller ...	do	3rd Battalion Artillery.
	do *George O'Hara. ...	do	H. M. 60th Regt. of Foot.
	do *George Norton ...	do	Medical College.
	do Thomas Horrox ...	do	Ganjam Survey.
10	*Edmond White ...	do	H. M. 1st Royal Regt. of Foot.
	John Lloyd ..	do	Collector's Establishment, Salem.
	do *James White ...	do	d. d. Artillery at Rangoon.
	William Miles ...	do	H. M. 18th Royal Regt.
	Thomas Leonard ...	do	Ganjam Survey.
15	Samuel Newnan ...	do	H. M. 60th Regt.
	James Hoyle ...	do	d. d. Civil duties at Negapatam.
	*Samuel B. Kemp ¶....	do	
	John Gorman ...	do	Lying-in-Hospital, Madras.
	do William Leach ...	do	68th Regiment of Foot.
20	Henry W. Martin ...	do	Doing duty Ramandroog.
	P. S. A. John Martin ...	9 April 1858	H. M. 91st Regiment.
	do Wm. K. Kierulf ...	27 do	2nd Battalion Artillery.
	do Henry H. Lynsdale...	do	d. d. Medical Stores, Presidency.
	do Patrick J. Finley ...	9 July	4th Battalion Artillery.
25	Michael Kinsley ...	10 August	d. d. Ootacamund.
	do Lazarus Dyce ...	31 Dec.	H. M. 74th (Highlanders) Regt. of Foot.
	Anthony D'Rozario...	4 Jan. 1859	H. M.'s 43rd Regiment.
	do Francis Meneaud ...	25 Feb.	d. d. 1st Madras Fusiliers.
	do James West ...	29 March	H. M. 66th Regiment.
30	Patrick Heron† ...	17 June	d. d. Genl. Hospital, Madras.
	John Edwin Ross†...	12 October	Depôt of Poonamallee.
32	——		
	ASST. APOTHECARIES, 197		
1	*P. S. A.* *George Drake ..	20 June 1845	d. d. 2nd European L. I.
	do *James Hargreaves...	17 March 1846	Station Hospital, Malacca.
	do *William Powell ...	28 do	Kimedy.

P. A. signifies passed examination as Apothecary.
P. S. A. signifies passed examination as Second Apothecary.
¶ Under orders of the Supreme Govt. for employment with European Corps in Bengal.
† Supernumeraries.

List of Medical Warrant Officers of H. M.'s Indian Forces—*(Continued.)*

No.	Names.	Date of Rank.	Stations, &c.
	ASST. APOTHECARIES.		
	Wm. Douglas Master	22 Aug. 1845	
5	*P. S. A.* *Daniel Henry Gray.	23 April 1846	d. d. H. M. 18th Regt. of Foot.
	do Henry Wale ...	15 June	H. M. 43rd (Lt. Infy.) Regt. of Foot.
	do Henry Callaghan ...	30 July	d.d. Rev. Sett. Party, Manantoddy.
	do *R. F. Stephenson ...	11 August	Dispensary 2nd District.
	do *Francis B. Pereira...	29 Oct.	Mysore Commission.
10	*P. A.* John Middleton ...	11 Nov.	d. d. Dept. of Depy. Inspr. Genl. of Hospitals, Ceded Districts.
	P. S. A. *John Asiaticus Hill Wahab ...	21 Sept. 1847	d. d. Dept. of Depy. Inspr. Genl. of Hospitals, Nagpore Force.
	do T. Humphreys Carr..	19 Dec.	In charge of the Civil Station and Dispy. at Raepore.
	do *Alphonso White ...	2 Feb.	Oossoor.
	do W. Lindsay Crawford	29 do	1st Madras Fusiliers.
15	*do* *ThomasRichaidPeck	do	Lunatic Asylum.
	do John W. McKenzie...	do	3rd Madras European Regiment.
	do W. T. Chillingsworth.	28 March	H. M. King's Dragoon Guards.
	do James Thomas ...	18 August	Chintadrepettah Dispensary.
	do Abraham Saviel ...	24 Sept.	Doing duty at Tanjore.
20	*do* *John Joseph Wood.	2 Oct.	Asst. to Professor of Botany and Materia Medica in the Medical College.
	do Henry Hitchock ...	11 do	Cochin.
	do *Robert Donaldson...	26 Dec. 1848	d. d. Pensioners, Cuddalore.
	Samuel Sausman ...	6 March 1849	Mergui.
	do Joseph O'Keeffe ...	3 May	2nd Battalion Artillery.
25	*do* Henry Godbier ...	12 June	Male Asylum.
	James Lears ...	14 Sept.	d. d. Sebundies at Palcondah.
	John Bornshin ...	8 Jany. 1850	H. M. 69th Regt. of Foot.
	George Anthony Trutwein ...	15 March	Triplicane Dispensary.
	John Alexander Beckett ...	26 do	d. d. Cantonment of Arcot.
30	*William Lewis ...	17 June	Department of Deputy Inspector General of Hospitals, Nagpore Force.
	*Samuel Hall ...	2 July	Public Cattle Depot, Hoonsoor.
	*Austin Ince ...	29 do	A Troop Horse Artillery.
	*Michael Netscher ...	6 August	Dept. of Depy. Inspr. Genl. of Hospitals, Pegue Division.
	P. A. *Laurence Carthy ...	9 Sept.	Andaman Islands, with local rank of 2nd Apothecary.
35	*David Stewart ...	27 do	Dept. of Depy. Inspr. Genl. of Hospitals, Ceded Districts.
	George Bamford ...	24 Dec.	d. d. Artillery.
	Charles Robertson ...	22 April 1851	Dept. of Depy. Inspr. General of Hospitals, Northern Division.
	George Nicholls ...	22 May	Garrison of Bellary.
	*Thomas Quinn ...	25 July	Garrison of Vizagapatam.
40	Robert Alexander Leonard ...	14 Nov.	H. M. 68th Regiment of Foot.

P. S. A. signifies passed examination as Second Apothecary.

List of Medical Warrant Officers of H. M.'s Indian Forces—*(Continued.)*

No.	NAMES.	Date of Rank.	Stations, &c.
	ASST. APOTHECARIES.		
	Henry O'Flaherty ...	5 June 1852	Andaman Islands, with local rank of 2nd Apothecary.
	Charles James Daly ...	do	B Troop Horse Artillery.
	Richard Wilkins ...	do	Demonstrator of Anatomy and Curator of the Museum at the Medical College.
	*Henry Hackett ...	29 do	d. d. Dept. of Depy. Inspr. Genl. of Hospitals, Pegue Division.
45	Peter Anderson ...	21 August	Gooty.
	*J. Howard, M. D. & M. R. C. S., [Eng.]	27 do	Medical charge of the Zillah of Ganjam.
	*John Sausman ...	do	Dept. of Depy. Inspr. General of Hospitals, Sn. Division, d. d. at Paumbem.
	*William Thomas ...	1 Oct.	H. M. 91st Regiment of Foot.
	Charles Smith ...	10 Dec.	3rd Battalion Artillery.
50	John Ringrow ...	17 Oct.	Andaman Islands, with local rank of 2nd Apothecary.
	Thomas Joseph Riely ...	do	Doing duty Department of Deputy Inspector General of Hospitals, Hyderabad Subsidiary Force.
	John Wayne ...	31 May 1853	d. d. Department of Deputy Inspector General of Hospitals, Mysore Division.
	William Osman ...	7 July	d. d. Battery Royal Artillery, China.
	Charles Pettigrew ...	7 July 1853	Mysore Commission.
55	James Karney ...	do	d. d. Native Infantry Depot, Palaveram.
	Samuel Wells, M. D. ...	3 May 1854	N. Infy. Depôt, Palaveram.
	Daniel Truth O'Keeffe ...	do	Artillery at Penang.
	*George Frederick Carpenter..	do	47th Regt. N. I.
	Patrick Kinsley ...	do	Medical Stores, Madras.
60	Ambrose D'Rosa ...	do	Civil Hospital, Moulmen.
	George Watson ...	do	Garrison of Bangalore.
	Joseph Hackett ...	do	Pauper Hospital, Singapore.
	Walter Hugh Yarde ...	9 do	Under the orders of the Officer Commanding Pegue Division at Menghie.
	John Walker ...	30 do	H. M. 74th Highlanders.
65	Robert Harvey ...	3 April 1855	General Hospital.
	Caleb St. John Lawrence ...	do	Garrison of Cannanore.
	Thomas George Eade ...	do	Province Wellesley.
	John James Henry Everard ...	do	Cantonment of Secunderabad.
	George Christopher Brown ...	do	Pauper Hospital, Singapore.
70	Francis Henry Horatio Smith.	do	Depôt Poonamallee.
	Miles Craggs ...	do	Cantonment of Kamptee.
	Fred. Agtus. Adolphus Vint...	do	No. 7 Horse Field Battery.
	Francis Edward Smith ...	do	Dept. of Depy. Inspr. General of Hospitals, Pegue Division.
	Robert Stewart ...	10 July	Convalescent Depôt, Wellington.

List of Medical Warrant Officers of H. M.'s Indian Forces—*(Continued.)*

No.	Names.	Date of Rank.	Corps, Stations, &c.
	ASST. APOTHECARIES.		
75	Edward Samuel Mayley ...	28 July 1855	Dept. of Depy. Inspr. General of Hospitals, Northern Division.
	Joseph Victor Duckworth ...	do	Dept. of Depy. Inspr. General of Hospitals, Hyd. Sub. Force.
	John J. Leonard Wheatley ...	do	13th Regiment N. I.
	Anthony Lawrence Xavier ...	do	Andaman Islands, with local rank of 2nd Apothecary.
	Charles D'Santos ...	21 May 1856	General Hospital.
80	Robert Henry Legge ...	do	d. d. Dept of Depy. Inspr. Genl. of Hospitals, Hyderabad Subsidiary Force.
	John Hardaker ...	do	Dept. of Depy. Inspr. General of Hospitals, Northern Division.
	Paul George Paul ...	do	Do. do.
	John Edward Lillywhite ...	do	Garrison of Trichinopoly.
	Thomas Cripps ...	do	19th Regiment Native Infantry.
85	John Green ...	5 do 1857	H. M. 1st (Royal) Regiment of Foot.
	William Karney ...	do	Sappers and Miners.
	Henry Stagges ...	do	Dept. of Depy. Inspr. Genl. of Hospitals, Pegue Division.
	Thomas Ward ...	do	17th Regiment N. I.
	George Wilkie ...	do	Dept. of Depy. Inspr. Genl. of Hospitals, Pegue Division.
90	Easton Alfred Morris ...	do	Dept. of Depy. Inspr. Genl. of Hospitals, Ceded Districts.
	Henry Joseph Scott ...	do	4th Battalion Artillery.
	George Shunker ...	do	21st Regiment N. I.
	Samuel Johnston ...	do	Body Guard.
	Leonard Walter Lincoln ...	do	39th Regiment N. I.
95	*Joseph Peter D'Silva ...	do	Dept. of Depy. Inspr. Genl. of Hospitals, Southern Divn.—Doing duty C Company 2nd Battalion Artillery.
	*John Sausman ...	16 do	Garrison of Vellore.
	James Joseph O'Flynn ...	do	25th Regiment N. I.
	Henry Boon ...	do	4th do
	James Albert Falloon ...	16 do 1857	Dept. of Depy. Inspr. Genl. of Hospitals, Northern Division.
100	James Walker ...	do	26th Native Infantry.
	*William Hamilton ..	3 August	Doing duty Dept. of Depy. Inspector Genl. of Hospitals, Pegue Division.
	William Gilbert Wright ...	do	7th Regiment N. I.
	William Joseph Gray ...	do	2nd Regiment L. C.
	Edmond O. Claudius Vint ...	do	Dept. of Depy. Inspr. Genl. of Hospitals, Ceded Districts.
105	James McFarland ...	do	48th Regiment N. I.
	*John Robert Carey ...	do	Doing duty Tambacherry Pass.
	John Arthur Evers ...	do	Doing duty Leper Hospital.
	Thomas Everard ...	do	Eur. Infy. Camp, Vizagapatam.
	*Thomas Gabriel Devine ...	do	Malabar and Canara.

List of Medical Warrant Officers of H. M.'s Indian Forces—*(Continued.)*

No.	Names.	Date of Rank.	Corps, Stations, &c.
	ASST. APOTHECARIES.		
110	Richard James Ramsbottom...	3 August 1857	Dept. of Depy. Inspr. Genl. of Hospitals, Mysore Division.
	James Hugh McClosky ...	do	Colonial Apothecary, Labuan.
	George Watson ...	do	Doing duty 2nd European L. I.
	William Watson ...	do	H. M. 66th Regt. of Foot, Detachment at Malliapooram.
	John Felix James Borgonha...	do	Station Hospital, Singapore.
115	Edward James Heiden ...	do	d. d. Dept. of Depy. Inspr. Genl. of Hospitals, Northern Divn.
	James George Ashworth ...	do	With Fane's Horse, China.
	Thomas Tudor Van Hams ...	do	33rd Regiment N.I.
	James Ringrow ...	25 do	Dept. of Depy. Inspr. Genl. of Hospitals, Malabar and Canara.
	John Isacke ...	do	1st Battalion Artillery.
120	Daniel Callaghan ...	1 October	23rd Regiment N. I.
	John Norman ...	do	Dept. of Depy. Inspr. Genl. of Hospitals, Pegue Division.
	Edwin Atkinson ...	do	17th Lancers.
	Alfred Wright ...	do	C Troop Horse Artillery.
	James John Watts ...	do	5th Regiment N. I.
125	Benjamin Lewis Xaxier ...	do	31st do
	Thomas Kelly Hall ...	do	Dept. of Depy. Inspr. Genl. of Hospitals, Pegue Division.
	Charles Thipthorp ...	do	d. d. with working parties at Dumugudium.
	Henry Cunningham ...	do	Doing duty H. M. 3rd Battalion 60th (Rifles) Regiment of Foot.
	Augustus Craver Thompson...	do	Dept. of Depy. Inspr. Genl. of Hospitals, Nagpore Force.
130	Nicholas D'Rozario ...	do	50th Regiment N. I.
	Thomas V. S. Aitkins ...	do	d. d. Troop Horse Artillery.
	David Marian ...	10 Nov.	d. d. Dept. of Depy. Inspr. Genl. of Hospls. Presidency.
	Francis Brown ...	19 Jany. 1858	Doing duty Royal Artillery, Secunderabad.
	Alexander Trutwein ...	1 June	27th Regiment N. I.
135	Christian Thomas Browne ...	24 August	2nd do
	George Marrow ...	do	Dept. of Depy. Inspr. Genl. of Hospitals, Pegue Division.
	Thomas Edwin Judge ...	do	F Troop Horse Artillery.
	James Wood ...	do	d. d. 7th Light Cavairy.
	George Stuart ...	do	15th Regiment N. I.
140	James Henry Lincoln ...	do	40th do
	*Charles William Baker ...	do	16th do
	Christian Michael Antonio ...	do	51st do
	*George Bayley ...	do	31st do L. I.
	Richard Alexander Bowie ...	do	Dept. of Depy. Inspr. Genl. of Hospitals, Presidency.
145	Reuben John Anderson ...	do	3rd Regiment L. I.
	Richard Wells ...	do	Doing duty 20th Regt. N. I.
	James Theodore Gilles ...	do	10th Regiment N. I.
	Michael Wade ...	do	Eur. Arty. Vet. Co., Palaveram.

List of Medical Warrant Officers of H. M.'s Indian Forces—*(Continued.)*

No.	Names.	Date of Rank.	Corps, Stations, &c.
	ASST. APOTHECARIES.		
	*George William Phillips ...	24 August 1858	Dept. of Depy. Inspr. Genl. of Hospls. Hyd. Sub. Force, d. d. Batteries Royal Artillery.
150	Jonas Isaac Laffrey ...	do	42nd Regiment N. I.
	George Edwin King ...	do	43rd do
	William Day Stewart ...	9 Nov.	d. d. on board Str. "Coromandel."
	Edwin Gustavus Scott ...	24 Dec.	29th Regiment N. I.
	Francis D'Sylva ..	1 Feb. 1859	Detachment N. I. Labuan.
155	Jonathan Chadwick ...	do	41st Regiment N. I.
	Thomas Baracliffe ..	20 April 1860	Collector's Dept. Vizagapatam.
	Theophilus Todd ...	5 May	3rd Regiment L. I.
	James Delany Jones ...	do	11th do N. I.
	Joseph Johnson ...	do	28th do
160	John Edwin Xavier ...	do	46th do L. I.
	Edmund Trutwein ...	do	35th do N. I.
	Charles Trutwein ...	do	44th do
	Edward Gillson ...	do	4th do L. C.
	Charles Jordon ...	do	24th do N. I.
165	Stephen Chalke ...	do	52nd do
	Alfred James Butterfield ...	do	26th do
	John McDiarmid ...	do	32nd do
	James Anderson ...	do	9th do
	George John Duckworth ...	do	18th do
170	George Albert Watts ...	do	6th do
	Richard Hamilton ...	do	Dept. of Depy. Inspr. General of Hospitals, Hyd. Sub. Force.
	William Johnston ...	do	45th Regiment N. I.
	Henry Wells ...	do	Pegue Police Battalion.
	David Arklie ...	29 June	1st Regiment N. I.
175	Thos. Mergler ...	3 August	22nd do
	J. Trutwein ...	7 May 1861	d. d. H. M. Steamer "Dalhousie."
	Daniel O'Leary ...	do	30th Regiment N. I.
	John Bazely ...	do	14th do
	Albert B. Court ...	do	15th do
180	W. A. Harrison ...	do	38th do
	C. D. Rose ...	do	37th Grenadiers.
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List of Medical Warrant Offiers of H. M.'s Indian Forces—*(Continued.)*

No.	Names.	Date of Rank.	Corps, Stations, &c.
	PASSED MEDICAL APPRENTICES.		
1	W. H. Eade ...	6 May 1861	d. d. 1st Regiment L. C.
	J. P. R. Thoy ...	do	d. d. 49th do N. I.
	F. W. S. Newland ...	do	d. d. 5th do
	J. McDermott ...	do	d. d. 8th do
5	S. Steinhoff ...	do	d. d. 5th Battalion Artillery.
	S. E. Carrapeitt ...	do	d. d. H. M.'s 43rd Regt. of Foot.
	F. Green ...	do	d. d. 1st Battalion Artillery.
	C. A. Leary ...	do	d. d. Depôt Poonamallee.
	C.R. Meneaud ...	do	d. d. 1st Madras Fusiliers.
10	C. S. Aitkins ...	do	d. d. 36th Regiment N. I.
	W P. Oliver ...	do	d. d. General Hospital.
12	H. Hawkes ...	do	d. d. Nat. Infy. Depôt Palaveram.

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